

# The CHEMIST

Bulletin of

THE AMERICAN INSTITUTE OF CHEMISTS, INC.

FLORENCE E. WALL, *Editor*, 233 Broadway, New York City

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## Proceedings of the Annual Meeting of

### The American Institute of Chemists

Washington, D. C., May 9, 1931

#### Luncheon Meeting: Presentation of Institute Medal

The luncheon meeting at the Carlton Hotel, Washington, on May 9th, marked this year's Annual Meeting as distinctly different from any other in the history of the Institute.

The luncheon was attended by about one hundred and thirty Institute members, with members of their families and guests, and, because of the rather personal nature of the occasion, many relatives, intimate friends, and business associates of the medalists, who had gathered from many parts of the country to do them honor.

#### Dr. Breithut's Presentation

The program, which was brief and very simple, was broadcast over a national hook-up. Promptly at one o'clock, President Breithut commenced his presentation address, which was as follows:

We are here to honor two great chemical engineers—Andrew W. Mellon and Richard B. Mellon.

Two years ago The American Institute of Chemists had the privilege of bestowing its medal upon Mr. and Mrs. Francis P. Garvan. The far-reaching consequences of the munificent benefactions of the Garvans are incalculable, especially in the field of chemical education and in acquainting the public with the significance of chemistry.

Last year our medalist was Mr. George Eastman. Mr. Eastman's liberality to educational institutions such as the Massachusetts Institute of Technology is a matter of common knowledge. It is not so generally known that he has made pure research in organic chemistry more easily attainable by his manufacture of synthetic organic chemicals and the supplying of these chemicals, at cost, to research workers.

Today we honor two men who had the vision, the foresight, and the will to give chemical industrial research a tremendous impetus through the establishment of the Mellon Institute of Industrial Research and this they did eighteen years ago when chemistry was regarded by most industrialists as a step-child rather than as a blood relation.

Would that more men of means would follow their example! Though the United States is primarily an industrial nation, it is a sad commentary on our lack of appreciation of scientific research that the Mellon Institute of Industrial Research is the only Institute of its kind in the whole country. We have Agricultural Experiment Stations in every state. Why should not the leading industrialists of each state get together

and establish industrial research stations in each of them? Entirely aside from the general good which would inevitably result, it can be guaranteed that the dividends to the sponsors would be real and ample. The whole routine of procedure has been worked out by the Mellon Institute. There is nothing experimental or hazardous to be faced. Nearly twenty-five years of solid experience are to be drawn upon, for the industrial fellowship system had its inception in 1907 when Robert Kennedy Duncan first tried out his original idea at the University of Kansas.

Another desirable end which could be accomplished by the establishment of institutes of industrial research throughout the country would be the bridging of the gap between capitalists and technical men. This is one of the primary and immediate needs of the hour.

The American chemical industry is the equal of any in the world today. With the establishment of institutes of industrial research in each state we could lead the world in chemical research in pure science. Is not such a goal worthy of our best efforts?

One more word! There is no field of human endeavor with such pressing problems as human disease—its causes, prevention, and cure. Here the magnificent service of the Chemical Foundation cannot be overestimated. I am happy to be able to tell you that our medalists are fully cognizant of the importance of health problems. The last Congress passed a bill establishing the National Institute of Health, largely through the efforts of Secretary Mellon. I predict that this Institute has before it as great a field of usefulness and as great a success as the Mellon Institute of Industrial Research. We look to the guidance of such men as Andrew W. Mellon and Richard B. Mellon to make a reality of the dream of the ages—the freeing of man from the ravages of disease. May their example be a model for other men of means and vision!

Andrew W. Mellon and Richard B. Mellon: On behalf of The American Institute of Chemists and in recognition of your unselfish and modest service to the science of chemistry and the profession of chemist in America I have the honor to present you with these medals. We want you to know that they are presented to you with the appreciation, the admiration, and the affection of American chemists.

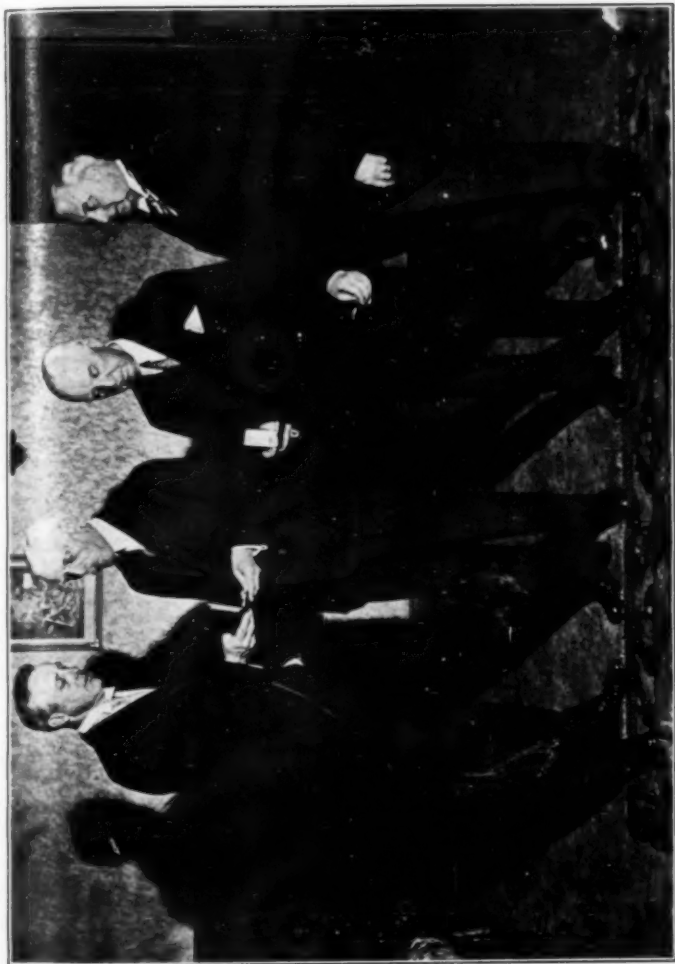
### Mr. Mellon's Acceptance

Mr. Andrew W. Mellon, speaking on behalf of both his brother and himself, responded as follows:

In accepting this medal, my brother and I do so with a deep appreciation of the honor which The American Institute of Chemists has conferred upon us. It symbolizes to us your approval of what we have tried to do for public health and industry and for the great profession which you represent. We feel privileged to have been given this opportunity of service; and it is an additional happiness to both of us that in this, as in so many of the other affairs of life, we should be associated together and receive this joint honor at your hands.

I cannot let this opportunity pass without a reference to Robert Kennedy Duncan, who introduced my brother and me to the limitless possibilities of scientific investigation, particularly in the field of chemistry and chemical engineering, as applied to the development of industry. Dr. Duncan was one of the pioneers in industrial research; and the System of Industrial Fellowships, which he evolved and which has been further developed by his worthy successor, Dr. Weidlein, has furnished a practical method of placing scientific investigation at the service of business and industry.





Acme—P & A Photo  
PRESENTATION OF INSTITUTE MEDAL. LEFT TO RIGHT: DR. FREDERICK E. BREITHUT, PRESIDENT OF THE INSTITUTE; ANDREW W. MELLON; RICHARD B. MELLON; HOWARD S. NEIMAN, SECRETARY OF THE INSTITUTE

We have found the chemist to be a valuable guide in the world of business. He has shown us that the use of the sciences and of chemistry in particular is essential in maintaining both human and industrial health and strength. We have all learned to have confidence in the chemist and his work. We have seen that his methods, based on the results of diligent research, are sound and, when followed, introduce correct practices in manufacturing and other undertakings.

Industrial research today is discovering new materials, new processes, and finding new uses for by-products many of which in the past have been discarded as of no value. It has opened up new vistas of what the future has in store for us—a future holding infinite promise as we increase our knowledge of the elements which compose the earth and of the uses which can be made of them.

Again I wish to thank The American Institute of Chemists for the honor which you have conferred on my brother and me and to say that it fills us with a sense of gratitude that we have been privileged to provide a few of the tools which science needs in the great work that it is doing.

Dr. Breithut then read the following telegram from former Senator Ransdell of Louisiana, the sponsor of the recent bill which authorized the establishing of the new National Institute of Health, a project in which Mr. Andrew Mellon is deeply interested.\*

#### WESTERN UNION TELEGRAM

Lake Providence, Louisiana  
May 8, 1931

DOCTOR FREDERICK E. BREITHUT  
President, American Institute of Chemists  
Carlton Hotel  
Washington, D. C.

Deeply regret imperative business prevents me from being with you on this auspicious occasion. Please extend to Messrs. Andrew and Richard Mellon my congratulations on the award to them by your Institute of its medal for service in the science of chemistry. They have richly earned this honor by founding the Mellon Institute of Industrial Research probably the greatest research laboratory in the world and developing in it the Industrial Fellowship System to its present commanding position in science and technology. Mr. Andrew Mellon strongly supported the bill creating the National Institute of Health which is destined to become the clearing house of health for mankind. He took active interest in this measure, made personal appeals to Congressmen for it, and presented as Secretary of the Treasury three able reports in its support. The two brothers have for many years been the backbone of the Children's Hospital of Pittsburgh and have shown much liberality to the University of Pittsburgh in connection with medical and hospital work. Friends of Mr. Richard Mellon say it is impossible to name any worthy measure for civic uplift and benefit in Pittsburgh that has not had his direct friendly influence. May God grant to these eminent Americans many years to enjoy the fruit of their labors and to continue their noble efforts for science and humanity.

JOSEPH E. RANSDELL, *Executive Director*  
Conference Board of the National Institute of Health

\* See *Chemistry and the National Institute of Health*, by Senator Ransdell, *The CHEMIST*, May, 1931.

## Mr. Davis' Address

Mr. Arthur V. Davis, Chairman of the Board of the Aluminum Company of America, next spoke as the representative of American business and industry:

Although it is almost unnecessary to say it, let me say first to you technical gentlemen that we business men appreciate to the utmost your selecting two non-technical men for the signal honor which you have conferred upon the Messrs. Mellon, and that we, their friends and associates, know it is well deserved, even beyond your own conception of the merit of the award. What strikes me—or I might say, strikes us business men—particularly forcibly today is that these medals are a recognition, to a greater extent than has ever been officially recognized before, of the fact that there usually must be vision, courage, and money behind scientific achievements, and that while the utmost credit is due to those who achieve the results, much credit, and perhaps equal credit, is due to those who may remain somewhat in the background but yet are the moving force.

I am reminded of my ministerial father, who had a great faculty for seeing underlying facts that were not obvious to everybody, and who once spoke to my mother of a certain man as a great musician. This man pumped the organ in the church and when my mother said that she did not think this man was a musician my father replied, "He puts into the organ all the tunes that the organist gets out of it."

This simile is not at all intended to be a comparison of the relative contributions of our guests of honor and of that musician, but it does at least remind us that the most brilliant performances are often based upon a contribution which presumptively the performer himself could not possibly make.

It has been my good fortune to be connected with a business in which research has played an all-important part and it has been equally my good fortune to be associated in that business with the medalists and I can assure you that the medalists have not only always shown the greatest sympathy and interest in our research work, but have also gone much further and insisted that such research work be done.

Forty years ago, or thereabouts, both the Messrs. Mellon became associated with the Aluminum Company of America and in that now somewhat remote time the advice and instructions of the Messrs. Mellon were always to the effect that neither expense nor energy should be spared in scientific research. And if, perchance, the Aluminum Company of America has been able to outstrip some of its foreign rivals, it is due to the result of such scientific work and consequently to the foresight and vision of our guests of honor, for which you are so properly rewarding them.



ARTHUR V. DAVIS

If the managers of the other industrial corporations in which our friends are influential, several of whom are sitting here, were to add their experiences to mine, you would learn that these two medalists have uniformly throughout their entire careers recognized that scientific research and industrial achievement go hand in hand. While such recognition is perhaps not today so very unusual, I wish to point out particularly that these two gentlemen were pioneers in this recognition of the bond between science and industry. The magnificent monument which they have erected in Mellon Institute is not the result of new views or of the recent adoption of a new policy; it is the natural fruit of ideas and policies which have always existed in their minds and which existed at a time when few, if any, of our leading industrialists foresaw or appreciated the value of technical research in manufacturing processes.

These medals, as we business men conceive it, have been presented only in part in recognition of the opportunity which has been afforded by the recipients for industry to receive the help of science. They are in great measure presented in recognition of the fact that our guests were among the earliest great financiers and great industrialists to recognize the help which industry can receive from science. What appeals to us so strongly, however, is that their presentation also, as we conceive it, is an acknowledgment that, vice versa, pure science owes a great deal to the opportunities granted to it by industry; and that while money, advice, and encouragement clear the way for science to help industry, they do also in reality clear the way for science to enter new fields of its own—whether utilitarian or not.

You scientific gentlemen do not need me to tell you in how many cases this is the fact. Certain grape growers called in Pasteur to rid their vineyards of a blight, and while thus the industry in that locality profited by the science of Pasteur, yet the money and insistence of these planters cleared the way for Pasteur to make the discovery which has alleviated the condition of mankind for the last generations. When the General Electric Company wanted to make incandescent lamps, they gave the instructions and put the money into research work to attain this end. They were successful, and while science has remunerated them handsomely for their efforts, science has also profited by this investigation because the X-ray tube was developed incidentally, and that development has not only been of tremendous advantage in medical practice and has improved and relieved the condition of mankind, but it has also been the means of letting science enter hitherto unknown fields. It enables one to examine and improve the structure of metals to such an extent that construction work of many, if not all, kinds has been practically revolutionized. Again, the Eastman Kodak Company wanted to keep up with the times, and their technicians produced the *Ciné-Kodak*. While this has undoubtedly been profitable to the company, the portable and practical instrument produced by these technicians enables scientists, as well as amateurs, to determine and record physiological and geological facts in a manner which promises to be of great benefit to mankind as well as to science.

A considerable number of your guests have, like myself, been privileged to be associated with the Messrs. Mellon for many years. None, therefore, knows better how well deserved is the honor you are conferring on them. We have known them when times were good and when times were bad—I might say when times *are* bad—and we know how steadfastly in all times they have stood in favor of scientific research. You never have found and you never will find men who will be ardent advocates and generous supporters of scientific research in industrial lines unless those men have faith in the future, foresight in the future, and business courage to embark on policies which can only come to fruition in the future. It is only such faith and foresight that make possible a belief in the advantages of scientific research, and it is only

such business courage that makes possible the generous financial support of such research.

I shall spare your two guests of honor any recital of the many other qualities which have endeared them to their friends here and elsewhere—their modesty, their generosity, and their kindness. These traits are in fact now so well known that it is unnecessary to dwell on them. But permit me to say that if you had most properly laid down the principle that these medals were to be given only to those whose faith in, and foresight into the future, and whose courage to do things for the future were so outstanding as to differentiate them from almost all other business men, your selection of these two men would be the very wisest from your standpoint and would meet with the utmost approval and thanks from those of us who are honored to be their associates.

#### Dr. Redman's Address

As the representative of chemistry, and of the chemical profession, Dr. Breithut then introduced Dr. Lawrence V. Redman, President-Elect of the American Chemical Society, lately retired President of The Chemists' Club of New York, and one of the first Industrial Fellows at Mellon Institute, who closed the program with the following tribute to the medalists:

You have done The American Institute of Chemists a great honor and you have conferred on the whole chemical profession a very great honor in accepting the Institute's Medal as a symbol of the chemist's gratitude to you for the interest that you have shown in increasing the world's store of valuable knowledge. It is indeed flattering to the chemist that you should have determined to place the weight of your influence in the realm of scientific research.

I remember with what enthusiasm Dr. Duncan came back to the University and told us that you had determined to found and to aid with your thought and your time the great institution which today is known the world over as the Mellon Institute of Industrial Research. He recounted to us the process of argument with yourselves whereby you came to this decision. Perhaps in your busy life you have long forgotten your process of reasoning by which you arrived at the decision, but from Dr. Duncan's description, and my memory, it was about as follows: You argued that mankind could not possibly be injured by the increase of useful knowledge. New truth, especially new, useful scientific truth, could only be good for the human race in the final outcome; and since the science of chemistry and applied science in general held out what appeared to be the greatest opportunity, you resolved to place part of your thought, time, and interest in encouraging the pursuit of new knowledge.



LAWRENCE V. REDMAN

The success of your undertaking is surely already outstripping the fondest of your dreams and the end is not yet. It is the glory of creative science that each bit of new knowledge carries with it the creative germ of many more ideas, which become reality and fact as the growth continues. Whose imagination is hardy enough to predict the future as the increase of knowledge widens and strengthens civilization's foundation?

The other day, as the members of the American Chemical Society were being shown the methods of sawing, turning, and carving limestone near Bloomington, Indiana, we observed the drills at work, cutting out those gigantic pillars—impressive monolithic columns—for the new *Mellon Institute*. I could not but reflect upon the rapid growth which the Institute has made from the modest beginning under Dr. Duncan's direction, in the wooden structure on the side of the hill in Pittsburgh, to the present magnificent laboratory, which now, we are told, is inadequate and is to be replaced by a new and greater edifice. It will challenge us all to increased effort to think of the colossal Mellon Institute devoted to creative chemistry, new knowledge, and science under the able administration of its Board of Trustees: you—the medalists—Mr. Phillips, Dr. Bowman, and Dr. Weidlein, its director.

May I impose on your time for one moment longer, to point out to you the reason why scientists treasure so highly the work you have done in establishing Mellon Institute? Our science is always eventually a profitable investment for mankind; but, like the exploitation of America when it was first discovered, how many expeditions have been at the moment unremunerative? You remember how many of the early attempts at colonization were commercial failures. Even the now prosperous State of New Jersey, where I live, crumpled up under the hands of the Duke of Buckingham, and had to be returned to the Crown to carry on at a loss as best it could.

In the quest to possess the Golden Fleece, adventurous souls have ever found the need for support from other men of equally adventurous spirit, whose ability and power could sustain the enterprises in the early unproductive periods.

In science, we often have the same delay in returns on investments; and unless we have men with foresight and ability to carry us over the years of labor before the profitable results appear, as did King Charles for New Jersey, we are in a position where excessive hardship must be endured and progress is delayed, sometimes almost stopped, for want of support in the exploring period.

I doubt if the blind Scotchman, Napier, made his logarithm tables profitable in his generation; but what engineer or astronomer could do without them today in calculating stresses and strains in building materials, or the movement of stars in their courses?

You remember that when Faraday found how he could make a charged wire move around a magnet, and a magnet move around a charged wire, he exhibited his experiment at the Royal Institution, and the remark elicited from the Chancellor of the Exchequer was: "It is very pretty, Mr. Faraday, but what use is it?" And Faraday replied: "Give it time, my lord, give it time. You will be able to tax it yet." Every dynamo, every motor, even the starting and lighting of your auto, is the result today.

We are proud, sirs, to know you as Chancellors of Exchequers with wider vision and greater kindness and more ability to see and act for the greatness of the future; and the future calls loudly for such support.

We are hampered in every direction today for want of knowledge. In chemistry we need tables of free energy and bound energy, as men needed logarithms in Napier's day. We need to know the laws underlying surface catalysis. We need to know the fundamentals of oxidation. But why go further? Man's needs in an intellectual

world lie all about him, and, as the knowledge comes and lingers with us, how great is the dream of man's future!

Your intention, as announced, of supporting more and more pure science research in the greater Mellon Institute has aroused world-wide commendation, and it is your interest in helping to support these needs which makes every scientist honestly and without restraint admire you.

Among the guests of honor were many outstanding figures in the world of American science, government, education, finance, and industry: Wilson S. Arbuthnot, President of the Arbuthnot-Stephenson Co., Pittsburgh; Dr. Thomas S. Baker, President of the Carnegie Institute of Technology; William Blum, of the Bureau of Standards (Institute medalist, 1926); Dr. John G. Bowman, Chancellor of the University of Pittsburgh, and President of the Board of Trustees of Mellon Institute; Howard Bruce, Chairman of the Board of Bartlett, Hayward Co., Baltimore; Hon. William Cabell Bruce, Senator from Maryland; James D. Callery, President of the Diamond National Bank, Pittsburgh; Samuel Harden Church, President of Carnegie Institute; George S. Davison, President of Allen S. Davison Co., Pittsburgh; Frank R. Denton, of Mellon National Bank; Col. James Frank Drake, President of the Gulf Oil Corporation; Felix P. Eysman, Assistant Secretary of the Treasury, Washington; David E. Finley, Special Assistant to Secretary Mellon; Dr. W. J. Holland, of Carnegie Institute of Technology; A. L. Humphrey, President of the Westinghouse Air Brake Co.; Roy A. Hunt, President of the Aluminum Company of America; Howard Irish, of the Commonwealth Trust Co., Pittsburgh; Howard M. Johnson, of Mellon National Bank; Sidney S. Liggett, Vice-President of the Union Trust Co., Pittsburgh; J. D. Lyon, Director of the A. M. Byers Co., Pittsburgh; C. D. Marshall, President, and H. H. McClintic, Vice-President, of McClintic Marshall Co., Pittsburgh; William S. Moorhead, Esq., Pittsburgh. Richard K. Mellon, T. A. Mellon, and William L. Mellon, all of Pittsburgh; Thomas H. McCandless, Vice-President of Forbes National Bank, Pittsburgh; Allen W. McEldowney, Vice-President of Mellon National Bank; H. C. McEldowney, President of the Union Trust Co., Pittsburgh; Frank R. Phillips, President of The Philadelphia Company; Henry A. Phillips, of Mellon National Bank; H. B. Rust, President, and J. C. Ramsburg, Vice-President, of The Koppers Company; Andrew W. Robertson, Chairman of the Board of the Westinghouse Electric Co.; George E. Shaw, of Reed, Smith, Shaw, and McClay, Pittsburgh; William Watson Smith, of Smith, Buchanan, Scott, and Gordon, Pittsburgh; Benjamin Thaw, J. C. Trees, Trustee of the University of Pittsburgh; Buckner A. Wallingford, of Walter-Wallingford and Company, Cincinnati; William G. Warden, and Thruston Wright, of Hill, Wright, and Frew, Pittsburgh.



Afternoon Session: Business Meeting

The ninth Annual Meeting of The American Institute of Chemists, Inc., was held at the Carlton Hotel, Washington, D. C., on May 9, 1931, at three o'clock P. M.

President Dr. Frederick E. Breithut presided.

After the minutes of the previous Annual Meeting were read and approved the Secretary submitted his annual report, as given on page 321.

The Treasurer submitted his report, showing a balance of \$1281.99.

The auditors reported that they had found the Treasurer's report correct; and the report was accepted and filed. Upon motion made and seconded the Treasurer was complimented upon his intelligent report.

Reports were submitted by the following committees: Ethics, J. F. X. Harold; Legislation, William M. Grosvenor; Membership, Leon V. Quigley; Navy Chemists, Henry Arnstein; Professional Education, M. L. Crossley; Public Relations, Frederick Kenney; Publication, Florence E. Wall, Editor of *The CHEMIST*; Qualifications, Howard S. Neiman.

Reports from the various Chapters were submitted as follows: New York, Leon V. Quigley; Pennsylvania, Benjamin Levitt; Washington, D. F. J. Lynch.

The names of Dr. Leo H. Baekeland, Dr. Edward C. Franklin, Dr. William McPherson, and Dr. William A. Noyes were submitted for election to Honorary Membership. Upon motion made and seconded, all were unanimously elected.

The Secretary reported that the following have been elected to the Council for the respective terms:

Term expiring May, 1932: Dr. Arthur E. Hill.

Term expiring May, 1934: Dr. Lawrence V. Redman, Dr. Allen Rogers, and Dr. Frederick W. Zons.

The Secretary announced that Dr. Max Trumper of Philadelphia has become a Life Member.

The necessity for bridging the gaps between Juniors and Fellows was emphasized, and the advantages incident to Student Chapters were favorably commented upon. A resolution was passed that the Council appoint a Committee for constitutional revision.

There being no further business presented, the President suggested that the various reports submitted by the Committees be discussed.

The President called attention to the aid and assistance rendered the Institute by The Chemical Foundation, Inc., and stated that this had enabled the Institute to have its own office in the Woolworth Building,

New York City, and had provided for a paid editor of *The CHEMIST*.

The necessity of still further increasing the usefulness of *The CHEMIST* and the necessity of contributions from members were emphasized.

Dr. Arnstein stated that there will be a meeting of the Association of South American Scientists in Buenos Aires and Montevideo, in October of this year, and that a member of the Institute be appointed to represent it at that time; the appointee is to cover his own traveling expenses but during the convention he will be the guest of the Association. The motion was made that Dr. Arnstein be so appointed.

There being no further matters presented at the meeting, adjournment was taken.

HOWARD S. NEIMAN, *Secretary*

May 10, 1931

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## Report of the Secretary

### MR. PRESIDENT AND MEMBERS OF THE INSTITUTE:

During the past season of 1930-1931 the Council held eleven meetings with an average attendance of eleven officers and councilors. A most encouraging feature of these meetings has been the presence of representatives from the Philadelphia and Washington Chapters at each meeting, thus showing an increased interest in the Institute activities by the Chapter members.

Dr. Charles H. Herty found it necessary to resign as Councilor due to business arrangements which made it impossible for him to give the personal attention to the Institute affairs which a councilorship demands, and Dr. Lawrence V. Redman was elected to fill the unexpired term.

The Council has always been deeply impressed with the importance of *The CHEMIST* as an impelling instrument for the advancement of the Institute, but because of lack of funds it had been unable to put into practical application the means for the production and issuance of a publication of the character which would accomplish the desired results. It was evident that a paid editor, whose entire time could be devoted to *The CHEMIST*, was the only solution of this problem. Fortunately, the Chemical Foundation, appreciating our position and being in sympathy with the objects desired, has graciously offered to meet the expense incident to an editor for *The CHEMIST* for at least one year, in order that its value may be determined. It is highly essential, therefore, that the members of the Institute give their hearty support to this enterprise by assisting the editor with articles for publication, and in calling it to the attention of the chemical profession.

The Washington Chapter submitted a detailed suggested form for the classification of chemists in the Government service, which was carefully considered and analyzed by a special committee appointed for that purpose, and returned to the Chapter with comments for further consideration. The importance of an improved classification for Government chemists is evident to those familiar with the present antiquated, illogical, and unfair rules and regulations.

Notwithstanding the existing business conditions, very favorable advances have been made in the matter of the Institute's membership. The membership of the Institute is as follows:

HONORARY MEMBERS	4
LIFE MEMBER	1
FELLOWS	520
ASSOCIATES	74
JUNIORS	46
Total	645

This represents a net increase in membership during the past season of 51.

The following actions were taken during the season:

<i>Elected:</i>	
FELLOWS	28
ASSOCIATES	12
JUNIORS	25
Total	65
<i>Deceased:</i>	
HONORARY MEMBER	1
FELLOW	1
Total	2
<i>Resignations:</i>	
FELLOWS	12
<i>Membership Change:</i>	
ASSOCIATE TO FELLOW	1
FELLOW TO ASSOCIATE	1
Total	2

A noticeable and most promising feature of the members elected during the season is the election of 25 Juniors. Since the total number of Juniors at the commencement of the season was 22, this represents more than 100% increase. It is upon the Junior membership that the Institute must depend very largely for its future growth, because they will be ad-

vanced in membership grade as their future education and experience warrant. It is for this reason that every effort should be made to interest student chemists in the Institute.

Because of the business depression which is naturally reflected in the economic condition of chemists, the National Council has been lenient with those members who have not paid their last year's dues, where this delinquency has been due to financial reasons and not a loss of interest in the Institute. The Council has also amended the By-laws, prorating the dues of new members upon a monthly basis for the remainder of the fiscal year in which they are elected.

The various activities of the Institute will be found in the several reports presented at this meeting, and, hence, reference need not be made to them by me.

The Officers and Councilors have devoted their time and energy to the interests of the Institute without consideration of their personal sacrifices and inconvenience. They have placed the Institute upon a firm foundation and have well builded an edifice for American chemists, but its usefulness depends almost entirely upon the chemists themselves.

The Council is but a means through which the members may work for their economic and professional advancement and, therefore, it is the duty of the members to give that governing body their support by advice and suggestion, and to increase the value of the Institute by increasing its membership.

Respectfully submitted,  
HOWARD S. NEIMAN, *Secretary*

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### Report of the Committee on Legislation (Licensing and Contract Forms)

on

### Standard Form of Employment Contract

TO THE AMERICAN INSTITUTE OF CHEMISTS:

This Committee regards the License Division of its work as a preparatory rather than a missionary work. It is the opinion of the Committee that the Institute would be unwise to urge upon any State the regulation of affairs within its own domain, or to urge the placing of restrictions upon chemists who are not members of the Institute, when so many of them, as well as of our own members, are still unaware of the advantages which may accrue from proper licensing.

The ultimate placing of such restrictions, however, is inevitable, and

the advantages are undoubtedly dependent upon co-operation by the profession. We know, therefore, that it is undoubtedly our function, and we believe it to be the function of the Institute, to prepare the way, and to have, if possible, a form of License Bill which can be heartily endorsed by the Bar Association, the Medical Association, and by our friends of the Engineering professions. If, as, and when any State elects to enact a License Law, it should be our function to see that the law proposed is of the form which will have the hearty support of all other professional societies and dignify, as well as control, the profession.

As reported to the Council and published in *The CHEMIST*, one of the first things which must be done is to have our members educate themselves on the advantages of licensing and realize that only in this way will it be possible to enforce the professional standards which the Institute advocates.

At the beginning of this fiscal year, the Committee was assigned by the President and Council to develop further the matter of a standard form of employment contract. The Committee studied carefully and discussed at length the work done by its predecessors on this problem. It was the opinion of the Committee that this is a matter which may affect vitally many thousands of chemists and also undoubtedly affect greatly the prestige of the Institute. The Committee therefore took the time to prepare a definite program of the progressive series of steps to be followed in its work on the standard form of employment contract, and also to draw up tentatively a budget of the cost and submit it to the Council.

This matter should be done in a manner of a major research or it should not be undertaken at all, because, unless it is done thoroughly with excellent legal advice, it would be a dangerous attempt. At the present time, there are sufficient demands on the resources of the Institute which are more urgent in nature and which make it unwise for us to commit ourselves to a task of this magnitude except in the most guarded and tentative fashion.

The Committee has reported to the National Council to this same effect and has been instructed to take the most conservative, if also the slowest course. Up to the present, therefore, the Committee has limited its efforts to collecting some of the forms of employment contract in present use, and it has received about a dozen of these. It will continue its work by preparing an analysis of these (and of others as received), which it hopes to have ready to submit to the Council in the early Fall.

Respectfully submitted,

WILLIAM M. GROSVENOR, *Chairman*

KARL M. HERSTEIN

FREDERICK J. KENNEY

## Report of the Committee on Ethics

TO THE AMERICAN INSTITUTE OF CHEMISTS:

This committee reports that the work for the year chiefly consisted in interviewing members and getting their viewpoints on a series of moot questions that have an ethical aspect, for the Committee deems it its province to reflect rather than to lead or tardily follow the best thought of the members. It is conscious of the conspicuous failure incident to legislation without a supporting *ethos*. Any code without the sustenance of the corporate conscience of our organization or without complete agreement and sanction for its enforcement is indeed still-born.

Much has been gained, however, by this cross-sectioning of our structure, and the Committee feels that our excellent code of ethics can be supplemented usefully by some new formulæ which will cover present malpractice in our profession and more clearly enunciate certain principles that will limit or prevent growing abuses. The number of offenders against proper professional practice will be much reduced when the Institute can offer reasoned reproof and full demonstration that certain practices at present tolerated or regarded as merely violating good taste, are, in fact ethically reprehensible in principle and in results. Patience must be exercised, however, in attacking certain objectionable practices to which age has given an unwarranted dignity, and an aroused professional conscience must be given time to completely awaken and act.

Respectfully submitted,

JOSEPH F. X. HAROLD, *Chairman*

ROSS A. BAKER

HENRY G. KNIGHT

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## Report of the Committee on Membership

TO THE PRESIDENT AND MEMBERS OF THE INSTITUTE:

Your Chairman has, meanwhile, been pondering the underlying methods by which some 300 new members could be secured. Also the underlying reasons why they might not be.

Conclusions to date: In the nature of the Constitution, aims, policies, platform, etc., of the Institute, there is every reason to believe that the task of securing additional members would be an easy one. There are some 20,000 members of the chemical profession in the United States.

Assuming that only 7000 of this number possess the qualifications for Fellow or Associate of the Institute, there should be at least 300 candidates immediately available.

Further to this, however, it is a fact that the Institute has been in existence since 1923, and during the recent years of this period its membership of 620, of which 515 are Fellows, has not rapidly increased. Contrasting the year 1929 with 1930, it appears that 51 members were added to the ranks. This is, of course, a net effect. The figure may involve definitely a smaller number, considering the factor of resignation.

The Chairman of your Committee has, during the past six years, been much in contact with activities of *The Chemists' Club* and nearly all of the chemical associations in New York. He has attended many chemical meetings elsewhere, and is fairly conscious of the reaction to The American Institute of Chemists existing not only in New York but in many states. He is increasingly appreciative that the Institute can dispel or eliminate certain objections which chemists usually advance.

Assuming that policies of the Institute are correct and laudable, remaining objections must rest with the technique with which they are advanced, light in which the Society appears, etc. It appears that the relationship of the Institute, that is, the back and forth reversible reaction between the body of the Institute and its potential public clientele or non-member chemists must be rather continuously in good tone and harmony.

Since the last Annual Meeting, the accruals in membership are as follows: Fellows, 28; Associates, 12; Juniors, 25.

Total membership is as follows: Honorary Members, 4; Life Member, 1; Fellows, 520; Associates, 74; Juniors, 46; total, 645.

At the end of the year 1929-30, the totals were as follows: Honorary Members, 5; Life Member, 1; Fellows, 504; Associates, 62; Juniors, 22; total, 594.

It will be seen that during the past year the enrollment of the Institute has advanced from 594 to 645, a net gain of 51.

Respectfully submitted,  
LEON V. QUIGLEY, *Chairman*  
Committee on Membership

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**HOW DOES YOUR ACCOUNT STAND ON THE TREASURER'S BOOKS? HAVE YOU PAID YOUR DUES?**



## Report of the Committee on Professional Education

### I. THE PROFESSION OF CHEMISTRY.

The practice of chemistry involves a wide range of activities and responsibilities. A broad fundamental training is indispensable to efficient service. This training is generally best secured through formal courses of instruction but no barrier should be raised to prevent anyone from obtaining the equivalent knowledge, if possible, by other means. The main concern of the profession must always be to insure competent service in the solution of chemical problems and in the interpretation of the facts of chemistry so as to advance our civilization.

The chemist must be qualified by education and experience to ascertain the facts of chemistry and interpret them so as to benefit humanity and accelerate progress. He should be capable of converting his highly specialized knowledge into a language readily understandable by the non-technical person of average intelligence. To do this he must first be able to comprehend the significances of the chemical phenomena he observes and then appreciate the difficulties of the non-technical mind in struggling with the problem of evaluating his results.

The training for the profession of chemistry must be broad enough to enable the chemist to appreciate the value of cultural subjects, such as art, music, literature, and philosophy; and to safeguard him from the danger of becoming merely a non-social, narrow-minded, individualistic experimenter in chemistry. A training for the profession of chemistry to be adequate must enable a man to serve well in chemistry and at the same time prepare him to be a useful and respected citizen. Service in chemistry often requires high specialized knowledge. This is best built upon a solid foundation of a properly balanced composition of scientific and cultural studies.

A few courses of chemistry elected in partial fulfillment of the Bachelor of Arts or Bachelor of Science degree do not prepare a person to qualify as a chemist. Likewise, an all-scientific course, mainly chemistry, fails to give an adequate preparation for the work to be done by the chemist. It is true that a little knowledge of chemistry may be very useful in many lines of work, and also that persons having a limited knowledge of the fundamentals of chemistry may be legitimately and satisfactorily employed in subordinate positions under close supervision in chemical work, but they should not be regarded as chemists until they have added to

their store of chemical knowledge and experience the equivalent of what an adequate training should have given them.

While a few persons possess the stamina and courage to overcome the handicap of inadequate fundamental training by studying nights to increase their knowledge of theoretical chemistry, the majority of such poorly trained persons are liabilities to the chemical profession because their incompetency reflects on the profession and makes difficult a fair recognition of the chemist's value.

An elementary knowledge of biology may make a person a more useful citizen, but it would hardly qualify him to practise medicine. It is not difficult to secure unanimity of opinion on this point. Why should the case be any different when the profession of chemistry is involved? The answer is that medicine is universally recognized as a profession and chemistry is not.

While many persons have practised chemistry in widely different fields in this country, the *profession* has, until during the last decade, been submerged in the quiet waters of the general scientific bay and its position has been almost completely overlooked.

*For chemists to secure professional solidarity it is necessary for it to be generally recognized that chemistry IS a profession, and that the profession embraces all who are proficient in the practice of chemistry irrespective of the branch in which they serve.*

The profession of chemistry is not confined to industrial chemists, as some appear to think. Teachers of chemistry, biochemists, research chemists (pure and applied), manufacturing chemists, and all other sorts of chemists are, first and foremost, *chemists*. That the teacher of chemistry in colleges and universities is primarily concerned with the science of chemistry so far as his original work in chemistry is concerned does not exempt a person from the profession. He will be no less a scientist by professing to practise the profession of chemistry. Likewise, the practice of chemistry in connection with industry does not exclude a person from the ranks of learned scientists. He is none the less a scientist because he happens to practise the profession of chemistry in connection with industry. All chemists, whatever special type of service they render, should learn to recognize one another, to understand their common professional problems, and stand together for the betterment of the profession.

The general acceptance of chemistry as a profession is absolutely imperative if standards of training and proficiency are to be maintained. The first essential to the success of the Institute's plan for raising the status of the profession of chemistry is to secure a wider recognition on the part of the schools giving instruction in chemistry that chemistry is a profession and that as such it requires a prescribed course of training

developed on principles similar to those governing the formulation of courses of study for the other professions.

The minimum training necessary to fit a person to qualify as a chemist should be the same irrespective of the specialized branch of chemistry he subsequently elects to follow. If he wishes to be a proficient teacher of chemistry he will need to add courses in psychology, pedagogy, philosophy, public speaking, and other subjects that particularly fit him to render his best service as a teacher. If he expects to be able to render valuable service as a research chemist he will need to add such studies as will best fit him to correlate data and think logically. If his choice is to practise chemistry in connection with manufacturing, then he will need to know something about the essentials of engineering principles, economics, and business management. In this respect the profession of chemistry is no different from other professions. *A minimum basic training is a pre-requisite for specialization in any profession.*

## II. THE MINIMUM EDUCATIONAL REQUIREMENTS FOR THE PROFESSION OF CHEMISTRY.

At present there is no generally recognized minimum educational requirement for the practice of chemistry. As a result, the educational equipment of workers in chemistry varies from no formal instruction in chemistry to seven years or more of collegiate and university training. Everything between these extremes can be found struggling to find a place in some type of chemical work. The average layman makes no distinction between the highly trained Doctor of Philosophy and the non-trained laboratorian; they are all *chemists*. Too often in the past few years the solution of important industrial chemical problems has been entrusted to inadequately trained and incompetent persons with disastrous results. Such experiences have demonstrated the importance of education in determining the capacity for service in chemistry. Persons with a limited knowledge of chemistry are finding it increasingly difficult to get an opportunity to do chemical work. They can be used only for routine work, which at best is not very alluring or remunerative. Only the exceptional have the ambition to gain the knowledge of chemistry essential to advancement.

It is a mistake to allow the college graduate with limited knowledge of chemistry or the person with only high school training in chemistry to think that he has the educational foundation for the practice of chemistry. His elementary knowledge of chemistry will no doubt help him in business but will not make him a chemist. In the chemical industry he may find opportunity for advancement in the non-technical departments but always in competition with men of superior training. To succeed he must, there-

fore, have unusual ability along other lines. Those who wish to serve in chemistry should be willing to secure adequate training for such highly specialized service. They should be able to find out what training is necessary. It is the joint responsibility of The American Institute of Chemists and the teachers of chemistry to formulate the minimum requirements which will adequately prepare for the profession of chemistry, and to see that those electing chemistry as a life work know when they make the choice what specific education they must have to qualify for the profession.

With this in mind, the Committee on Professional Education of The American Institute of Chemists has studied the entire situation pertaining to the profession of chemistry, taking into consideration the types of chemical activity, the training which, in general experience, has been shown to give the best results, and the degree to which this training is now required as a pre-requisite for chemical service by educational institutions. As a result of over two years' study, the Committee prepared an outline of a course of instructions which appeared to be the minimum training for the profession of chemistry, and submitted it to one hundred of the leading chemists of the country for their criticism.

Two groups of chemists were selected. One group was composed of the heads of departments of chemistry of eighty colleges, universities, and technical schools chosen to be representative of different sections of the country, and also of different types of schools—such as endowed colleges, universities, and technical schools, State universities, and agricultural colleges. The other group was selected to represent private research institutions and industrial research organizations. This group was composed of twenty of the leading directors of research in such institutions.

Thirty-two follow-up letters were sent out. Answers were received from 47½% of the teachers and 60% of the institutional and industrial research directors.

Both groups were unanimous in stating that an adequate training for the profession of chemistry could not be given in four years. A few qualified this by stating that their four-year men had made good in chemical industry; however, they felt certain that a six-year course would produce better results. One of the first group stated that the four-year chemistry students from his department could qualify for subordinate positions under supervision and there was a need for such men; but he would welcome a six-year course if generally adopted. There was some doubt expressed by some of the members of the first group about the possibility of getting general acceptance of a six-year course. It was suggested that the course was too short for the Doctor of Philosophy degree and too long for the Master of Science. The majority felt that

the course of training should be seven years to correspond to the present requirements for the Doctor of Philosophy degree.

The second group was unanimous in stating that six years was the minimum time in which an adequate training for the profession of chemistry could be given. It was the consensus of opinion that the courses should not be too definitely prescribed. There should be flexibility enough in the course of training to permit the person of unusual ability to reach the desired degree of attainment independent of the way obtained. The course should be regarded as illustrative of the average requirements rather than as a detailed prescription of the requirements. It was felt that any attempt to standardize the training of chemists would be a mistake.

The course suggested by the Committee, which would require, in general, six years for completion, was as follows:

ENGLISH:	12 credit hours*
MODERN LANGUAGES:	12 credit hours
ECONOMICS:	6 credit hours
MATHEMATICS:	18 credit hours
PHYSICS:	10 credit hours
HISTORY	} 9 credit hours from the group
PSYCHOLOGY	
PHILOSOPHY	
CHEMISTRY:	32 credit hours
ELECTIVES:	21 credit hours
And in addition, two years of graduate work, at least 75%	
of which should be in chemistry.	

In general, this course met with favor so far as the subjects were concerned but there was no unanimity of opinion on the minimum number of credit hours which should be required for each subject. It was thought by some that it would be better not to specify credit hours but simply to require a given number of courses in the fundamental subjects. There was a difference of opinion concerning the minimum requirement in mathematics. Many felt that the suggested requirement was unnecessarily severe and that it was unwise to require all chemists to have calculus. Both groups endorsed the requirement in English, the industrial group in particular stressing the inadequacy of this training at present. It is interesting to note that many of the educational group, while admitting the advisability of the English requirement, stated emphatically that the time spent by the students in the English courses usually given in college

\* By credit hour is meant the credit given for three semester hours of work, either three hours spent in laboratory or one lecture and two hours of study connected therewith. This requirement is based on the standard requirement of forty-five hours of actual work a week for 15 credit hours.

is wasted and does not suffice to give the desired training. Several members of the group expressed a similar opinion about the courses given in modern languages. They believe that it is absolutely necessary to require a reading knowledge of both German and French but they are not sure that the courses as now given in college are designed to meet this requirement.

Another interesting result of this study is the discovery of the fact that the present curricula of the schools which offer the Bachelor of Science in both Chemistry and Chemical Engineering require the chemical engineers to have economics but have no such requirement for the chemists. This is apparently because economics has been required for the Bachelor of Science in Engineering and that the requirements for the Bachelor of Science in Chemistry have been formulated on the assumption that the application of chemical knowledge is confined to laboratory research and does not involve problems of economics. This appears to be a natural outgrowth of past circumstances which limited the field of activity of the person who studies chemistry to teaching the subject and to scientific investigation which had no practical aim and in which economic factors were not considered.

In the course of the Committee's study of the professional situation, the question has arisen as to whether women should be encouraged to study chemistry. To answer this question satisfactorily we have weighed the evidence from the experiences of the past two decades in this country, during which time women have served in various capacities in chemical laboratories. There appears to be no reason why women should not be encouraged to enter the profession of chemistry. In particular, there is no reason to discriminate between men and women who are equally well trained and who have equal ability where the nature of the work permits women to compete on a fair basis with men. This is particularly true in chemical research in university laboratories and private institutions. In industrial research, women are limited to work which does not have to be translated in the plant by the laboratory investigator. Insofar as specialization in chemistry is concerned, we would recommend that women chemists specialize in the following types of chemical research: Bio-chemical research, the chemistry of foods, chemical bibliographical research, and technical secretarial work. The record of the past shows that women who were adequately trained in chemistry have rendered efficient service, and it justifies the conclusion that no barrier should be erected to exclude them from the chemical profession.

### III. RECOMMENDATIONS:

After a careful evaluation of the suggestions and criticisms of the two



groups to whom the suggested minimum course of training for the profession of chemistry was sent, the Committee recommends the following as the minimum educational requirements, and as an adequate foundation for the profession of chemistry:

a. ENGLISH:

Training in *rhetoric, English literature, writing, and public speaking* sufficient to enable a person to express his thoughts clearly and forcefully, and also enable him to appreciate the value of reading as a means of both deriving enjoyment and obtaining knowledge. This should be equivalent to High School English plus that which would be covered in about 12 credit hours of college work. In addition, it is highly important that the training in English should enable a person to appreciate the necessity of making proper and accurate records of his observations. This training could best be given in the scientific departments in connection with the taking of lecture notes and the recording of the phenomena observed in laboratory experiments.

The chemist should be taught to appreciate the necessity for recording his observations promptly and accurately. He should also be trained to report the results of his work in such a way as to call attention to their importance.

b. MODERN LANGUAGES:

Sufficient training in modern languages to enable the chemist to read the chemical literature in two modern languages with ease. A reading knowledge of German is indispensable to a chemist. The requirement should be met by the college board requirements for entrance in modern languages plus about 12 credit hours of college work.

In addition to the above requirement, the reading of assignments in German and perhaps also in French should be a part of the training in the use of chemical literature and the responsibility for this should rest with the Department of Chemistry.

c. ECONOMICS:

The chemical profession has to deal with quantitative ideas. It is essential that the chemist be trained in the general principles of economics and that he have in addition some specialized knowledge concerning the fundamentals of cost accounting and business administration. This work should be equivalent to that covered in six credit hours of college work.

d. MATHEMATICS:

Modern chemistry is becoming more and more difficult to understand without a comprehensive knowledge of mathematics. It is recommended that the minimum requirement in mathematics be that equivalent to what could be covered in 12 credit hours of college work.

e. PHYSICS:

A knowledge of the fundamental principles of physics is essential to an understanding of many problems in chemistry. The minimum training in physics should include both theoretical and experimental work in mechanics, heat, light, and electricity. The requirement should be fulfilled by the work covered in about 12 credit hours of college work.

f. CHEMISTRY:

The minimum requirement in chemistry necessary to lay the foundation for pro-



fessional work should be a thorough training in the fundamentals of inorganic, physical, and organic chemistry.

While we should not attempt to standardize the content of chemistry courses, it seems to us that careful consideration should be given to the question of revising the general courses in chemistry so as to permit students who have had chemistry in high school to continue with advanced work in college, and to provide a different type of general chemistry course for those who are not preparing for the chemical profession. Such a course should acquaint the student with the contribution that chemistry makes to world progress and should give him some idea of the method of science. In the revision of chemical courses it seems also desirable to include much or all of the qualitative analyses with general chemistry.

A special effort should be made by the Institute in co-operation with other interested organizations, such as the Committee on Chemical Education, to make the general course of chemistry as given in high school of such a grade that upon it may be built the highest type of college course. The committee feels that a high school course should initiate the student into chemistry, make him familiar with the chemical vocabulary and enable him to grasp better the difficulties of the subject as presented in college. This should be done wherever the laboratory facilities and teaching ability in high school will permit. With a thorough course in high school, the work in the fundamentals of chemistry should be covered by about 30 to 32 credit hours of college work.

#### g. HUMANITIES:

Chemists are called upon to apply their special knowledge to the solution of problems which may effectively aid in the advancement of science and contribute to social and economic progress. It is, therefore, essential that they have an acquaintance with the humanities. It is recommended that in particular they should have some knowledge of history, philosophy, and psychology. The requirement in this group should be met by about 12 credit hours of college work.

#### h. ELECTIVES:

In addition to the above, it is desirable, and in certain cases essential, that the chemist should have some knowledge of the biological and social sciences as well as such subjects as geology and mineralogy. It is also important that he should have some training in free-hand drawing. This should preferably be secured in high school, but if not, at least one semester course should be taken in college. The particular courses elected should depend upon the branch of chemistry the person expects to follow. If he elects to specialize in biological chemistry, he should elect the fundamental courses in biology. It is recommended that every chemist should have some knowledge of biology. The total amount of time permitted during the undergraduate course for electives is about 22 credit hours.

This suggested course should qualify the student for a Bachelor's degree but should not qualify him for the practice of chemistry. In addition, it should be necessary for him to do an amount of work equivalent to two years of post-graduate study, about 75% of which should be chemistry. On completion of this course he should receive the Degree of *Master of Science in Chemistry*.

This should constitute an adequate minimum education for the pro-

fession of chemistry, and this degree of attainment in education, whether arrived at by formal courses or in any other way, should qualify a person for *Associate Fellowship* in The American Institute of Chemists.

We recommend that the Institute use its influence to secure general recognition of the fact that chemistry is a profession, and specify a minimum educational requirement as suggested by the above.

Since this cannot be accomplished immediately, it would seem necessary for the Institute to interpret its requirements in such a way as to permit persons who have not received six years of formal educational training to demonstrate that they are able to meet the requirements by having the equivalent knowledge obtained in other ways. Some type of examination should be the means by which the Institute satisfies itself as to the adequacy of the education possessed by candidates for *Associate Fellowship*. At present the Institute requires a minimum of five years' experience in addition to six years of collegiate and post-graduate training for *Fellowship*. It is suggested that this requirement be made four years of experience and six years of collegiate and post-graduate training, or its equivalent. The five years' experience requirement was necessary when the educational requirement was four years. Since the educational requirement has been increased to six years, two of which represent post-graduate study, it seems fair to consider these two years as part of the experience and to change the requirement as above suggested.

The American Institute of Chemists should insist that the qualifications as set forth in the second paragraph (page 327) of this report define the chemist.

Respectfully submitted,  
M. L. CROSSLEY, *Chairman*  
NEIL E. GORDON  
HERBERT R. MOODY

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#### MEMBERS OF THE INSTITUTE

are earnestly requested to give serious study and consideration to this report of the Educational Committee, and to submit their comments either directly to the Chairman or to the Editor for discussion in *The Members' Forum*.

## Report of the Public Relations Committee

### TO THE AMERICAN INSTITUTE OF CHEMISTS:

The Committee on Public Relations submits the following report of its activities since its formation by the National Council on October 31, 1930.

The first activity assigned to the committee was to assume full responsibility for the character of the material published in *The* CHEMIST.

The committee is of the opinion that the most important objectives of our publication should be to attract chemists, and gain their personal esteem and willing co-operation; and to deserve the respect, confidence, and co-operation of the corporations, while reserving the right to defend the profession when they have imposed upon it beyond reasonable limits.

*The* CHEMIST is the proper medium for stimulating the interest of each individual member, especially of those who do not reside near the cities in which local chapters are established. It is imperative, therefore, that no article, statement, or phrase should appear in it that might be construed as an unwarranted reflection on any organization of chemists or any individual chemist. We should at all times take care to safeguard the self-esteem of all people with whom we wish to maintain friendly relations, but at the same time we should not abrogate our rights of defence if attacked.

The committee fully appreciates the importance of a well-organized publication built on sound principles as to the character of the articles published and their relationship to the principles of the Institute, and makes the following recommendations.

1. That *The* CHEMIST be a regular monthly publication with twelve issues each year.
2. That it be issued on a definite date each month.
3. That its character be gradually changed from that of a local organization bulletin to that of a national publication.
4. That a distinctive cover be adopted for the publication.
5. That the publication be constructed along the following lines:
  - a. Cover.
  - b. Table of contents.
  - c. Advertisements.
  - d. Editorials.
  - e. Major article on an objective of the Institute.
  - f. Historical article relative to the achievements of some prominent chemist.

- g. Article on general relation of chemical industries and their development to the profession.
- h. Chapter news.
- i. National Council matters.
- j. Open Forum.
- k. Book notes.
- l. Bureau of Employment notes.

In connection with the third recommendation that the character of the paper be gradually changed to that of a national publication a recommendation was recently made to the National Council that a Board of Contributing Editors be organized, consisting of members residing in various sections of the country. Thirty-three members were invited to serve on this board and the enthusiastic acceptances were very gratifying.

The advantages to the Institute from the establishment of this board should be far-reaching. That the members invited are all energetic, loyal, and true members of the Institute is demonstrated by the fact that although the vast majority of them reside many miles from the active fields of our National Council or local chapters, they still retain a live interest in the principles of our organization.

The Institute is to be congratulated on the staunch, virile determination of these members to assist in our endeavors for the profession. That they have a sincere determination is manifested in their willingness to co-operate in our plan to create greater interest in the Institute in all sections of the country. The fact that the Institute has members in forty states, many of them leaders with national reputations in their respective fields is not generally known, but it is hoped that this knowledge will be spread through *The CHEMIST*.

The committee is now engaged in another activity that is very important to the Institute and its members.

At a recent meeting of the Philadelphia Chapter a paper entitled *New Hazards for the Chemist*<sup>1</sup> was read by Dr. Max Trumper. This paper referred to the rapid advances in the manufacture of synthetic chemicals on a commercial scale, many of which are promptly used as industrial chemicals. This latter use has developed many new hazards for the chemist in the laboratory and in the plant. Available information on the physiological action of many of these new chemicals is lacking because at the present time no institution in this country is engaged in this type of research. We are looking forward with great hope to the National Institute of Health recently established in Washington for information in the future about the toxicity of all chemical compounds used in industry.

<sup>1</sup> *The CHEMIST*, May, 1931.

In the meantime, however, it behooves us to investigate the protection afforded chemists by compensation laws.

The committee is now engaged in collecting copies of compensation laws now in force in the various states, and their application to industrial poisons. It is proposed to analyze these laws from the standpoint of protection to the chemist. The *American Public Health Association* and the *American Medical Association* will then be approached so that common interest may be developed toward the enactment of new laws, or the extension of present laws, to cover completely any injury or disease contracted through the industrial use of toxic chemicals.

The committee feels that this is an opportune time to present briefly one phase of Public Relations work.

The Public Relations department of an organization is one that may be readily misunderstood and misinterpreted by its members as to both its purpose and its field of operation. In the policy that the organization makes with all other persons, societies, and organizations, it is obvious that its procedure should be formulated with extreme care so that the efforts of the organization will be correctly interpreted, and will establish reactions which will in turn secure favorable results.

It is immaterial how much the members appreciate the value of the purposes and principles of an organization. If they do not present them in an attractive manner the organization will not succeed in a manner proportionate to its merits. Like the successful individual, an organization must develop a good personality if it expects to progress. Most people agree that a good personality is not only an attribute; it is an asset.

In referring to personality, a well-known professor of psychology once stated that:

Personality, after all, is only the sum total of the effect we have on other people. If we succeed in selling ourselves, if other people like us and our plans, we may be said to have a good personality.

What is it about certain people whom we meet occasionally that attracts us and pleases us almost at the first glance? What makes us at once feel kindly toward them? What does Charles Schwab mean when he speaks of "that indefinable charm that gives to men what perfume gives to flowers?"

Something very simple indeed, something we can all cultivate in ourselves, lies back of the "indefinable charm" which these people possess.

It may be the light in their eyes that we notice, or their smile; the whole expression of their face perhaps, or their bearing. But actually these things convey a simple message: *They like their fellow human beings and are genuinely interested in them.*

As in the case of individuals, so, too, the first consideration of an organization should be to conduct itself in such a manner that a pleasing impression is given to those with whom it comes in contact. This does not necessarily involve or develop any indication of timidity or fear of others,

because a good personality may go hand in hand with firmness and determination of purpose, self-respect, and the upholding of one's principles when assailed.

Very strong lifetime friendships are often developed by first impressions because of the pervading attractiveness of one's personality; so, too, the atmosphere of approach of an organization to any group of prospective members must be attractive in character.

A commercial association of national scope, appreciating the value of these principles, has adopted as a slogan "It is better to make a good first impression than to have to live down a poor one." Attractiveness, in the best sense of the word, is, therefore, the first essential for successful operation.

The next step is to arouse interest. The interest factor will vary in proportion to the importance of the objectives of the organization as considered by the people eligible for membership. The manner in which organization objectives are presented governs likewise the time necessary to obtain action. It is necessary to approach people through their own personal experiences and needs if we are to hold their attention and convince them. With attraction created by a good personality and interest aroused by showing the true value of our purposes, it is necessary to intensify on the part of others a desire to participate in our work.

The principle that has been proved to be the most effective by some of the greatest industrial leaders, is to make the other person feel important and superior; not to "show off" our own importance. In short, we must appeal to a man's personal aspirations. Another successful method is to sympathize with other persons' problems and the important thing here is to let them know that we are sympathetic, and ready to act on the solution of their difficulties.

As previously stated, this has not been an attempt to cover the broad field of Public Relations, but merely to draw a sketch of one phase of the subject in connection with the development and growth of our organization. Public Relations covers many phases in the field of organization, just as our individual relations include many diversified interests, such as social, business, fraternal, and civic activities.

Every group has specific idiosyncrasies that require special thought and planning and upon which long dissertations could be written.

Suffice it to say, however, that the maxim, "do unto others as you would have them do unto you," covers the subject very well. Again, Public Relations can be summed up in two words—*common sense*; yet there are uncommon difficulties in trying to define or apply it.

In conclusion, the committee very strongly urges concentration on the advantages of a professional organization for chemists, founded on the

principles of the Institute, by the local chapters in their formulation of meeting programs for next year. An active campaign should be conducted to demonstrate to non-member chemists how to improve their professional status. Constant elucidation of our objectives should be maintained so that the growth of the Institute may be stimulated and the chemist given the true recognition he deserves as a professional man.

Respectfully submitted,  
 FREDERICK KENNEY, *Chairman*  
 FREDERICK W. ZONS  
 LEON V. QUIGLEY

## Changes of Address

- HENRY A. AARONSON (p. 67): Send mail to business address, Picatinny Arsenal, Ordnance Dept., Dover, N. J.
- LUDWIG J. CHRISTMANN (p. 74): Send mail to new home address, 605 Pavonia Avenue, Jersey City, N. J.
- ALBERT E. CONKLIN (p. 75): Send mail to new home address, 17 State Road, Great Barrington, Mass.
- ELTON R. DARLING (p. 76): Change mailing address to Faines Park, Decatur, Ill.
- IRENE C. DINER (p. 77): Send mail to new home address, 3749 McKinley St., Washington, D. C.
- HENRY E. GOLDBERGER (p. 82): Send mail to new home address, 1755 Montgomery Ave., Bronx, New York.
- JOSEPH W. E. HARRISSON (p. 85): Send mail to new business address, 214 South 12th Street, Philadelphia, Pa.
- JOHN HELFRICH (p. 86): Change business address to 11 W. 42nd St., New York, N. Y.
- KIRBY ERROLL JACKSON (p. 88): Change address to Bagley Hall, University of Washington, Seattle, Wash.
- A. WILLARD JOYCE (p. 90): Change address to Perry, Davis Corp., 6 West 18th Street, New York.
- JOHN H. KUESEL (p. 93): Send mail to 146-45-15th Ave., Whitestone, L. I.
- CHARLES H. LAWALL (p. 94): Send mail to new business address, 214 South 12th Street, Philadelphia, Pa.
- SIDNEY J. LEBOLT (p. 94): Send mail to business address, Suite 605, 100 East 42nd Street, New York, N. Y.
- L. N. MARKWOOD (p. 97): Send mail to 10 Maple Street, Brooklyn, N. Y.
- WILLIAM R. MINRATH (p. 100): Send mail to new home address, 3801-150th Street, Flushing, New York.
- JAMES TOY (p. 117): Send mail to 329 W. Elm Street, Granville, Ohio.
- LLOYD VAN DOREN (p. 118): Change business address to 6 East 45th St., New York, N. Y.
- ROBERT A. WORLEY (p. 121): Change mailing address to 1216 West State St., Trenton, N. J.



## Report on *The CHEMIST*

### MR. PRESIDENT, AND FELLOW-MEMBERS:

Following the suggestions made in our annual report for 1930, the editorial work has been appreciably lightened during this past season by the co-operation of the contributing editors who were appointed by our various local chapters.

To Walter J. Baeza, of New York, Franklin D. Jones, of Philadelphia, James N. Taylor and J. David Reid, of Washington, we express our thanks for their faithful interest and the care with which they prepared material submitted for publication.

A notable accomplishment of this season has been the appointment of a Committee on Public Relations, intended to lessen personal responsibility on the part of the editor, to serve as a board of appeal on articles of questionable value, and to co-operate with the editor in the dissemination of news well chosen to express the policy of the Institute in furthering its objectives. Although this committee was appointed in October, the statement of its policy was not officially promulgated until March, so the benefits of the co-operation were unfortunately delayed.

To this committee has been accorded the privilege of selecting a board of contributing editors in various parts of the country, to stimulate local interest and to give *The CHEMIST* a truly national character. For the more efficient accomplishment of the very laudable purpose for which the committee was originally appointed, we earnestly advise that at least a selected group of this proposed editorial board may be allowed to confer with the committee regularly.

The establishment of the Institute office as the editorial headquarters of *The CHEMIST* and the assistance of secretarial work have greatly facilitated production work on the paper, and we have at all times had most prompt and efficient service on the part of our excellent printers. By more careful preparation of all articles submitted, and through ready co-operation of this kind on the part of most of our contributors, the time and expense of "author's alterations" have been reduced to an excusable minimum.

The expense of publication can be reduced appreciably for the future by a well-directed campaign for more advertising in *The CHEMIST*. This has been recommended before; and once more we suggest that the Council take official action on this matter so that prospective advertisers may be approached in the fall when their budgets are being planned. Efforts to secure advertisers at other seasons are usually fruitless.

Since the post of Editor of *The CHEMIST* has now been made a full-

time appointment, with a salary attached, and since we cannot conscientiously continue to hold this position and accept a salary when such a full-time position necessitates the abandonment of practically all our personal activities, the June issue of *The CHEMIST* will be the last under this régime.

As we retire to private life, it pleases us to recall that on the occasion of the 1928 Annual Meeting at Washington, the matter of a printed publication for the Institute was one of the major subjects under discussion. From the founding of the Institute in 1923, the only means of making official announcements and of intercommunication among members was in the form of a mimeographed bulletin, often bulky and of great importance, but, it was agreed, not quite in keeping with the dignified aims and aspirations of our organization.

Accordingly, in June, 1928, *The Bulletin of The American Institute of Chemists* appeared as a single four-page leaflet—with, however, many news items of interest, and 25% of advertising. In December of 1928, the bulletin first appeared as *The CHEMIST* (the new title being the happy inspiration of Past-President Crossley) and after that it increased, gradually but notably, in both size and news value.

Your present editor first came into possession in March, 1929, as the accidental inheritor of the many Institute activities of Albert Sachs. The generosity of the Chemical Foundation, in placing the facilities of the Mack Printing Company at our disposal, was the outstanding factor toward its improvement last season, and we are most appreciative of the splendid co-operation which we have had at all times. Our occasional difficulties and personal sacrifices are completely effaced in the pleasure and satisfaction of placing the fifty-two page issue of *The CHEMIST* for May, 1931, in your hands today on the occasion of our return visit to Washington for an Annual Meeting.

*The CHEMIST* is about to enter upon a new era of development. Each of those who preceded us—Miss Hoke, who ground out those multi-graphed sheets so patiently and devotedly during five long years, Mr. Seidell, former Secretary of the Institute, who launched our publication in print, and Mr. Sachs, whose spirited editorials did so much to establish its policy—each served a definite, necessary purpose. We, too, have served our purpose and now we willingly step aside so that under its new board of editors *The CHEMIST* may advance in rapid strides to a position of deserved prominence as a national periodical, which will be of interest to both scientists and laymen, and which will serve in every possible way to advance the personal and professional needs of American chemists.

Respectfully submitted,  
FLORENCE E. WALL, *Editor*

## Reports of Chapter Activities

### New York

The New York Chapter has during the past season held eight regular meetings. These have occurred at intervals of approximately one month. They have been well attended.

One meeting was held jointly with the New York divisions of the following societies: *American Chemical Society*, *Society of Chemical Industry*, *Société de Chimie Industrielle*, and the *American Electrochemical Society*. At this meeting, Dr. Shirley W. Wynne, Health Commissioner of the City of New York, spoke on the subject of "The Chemist and His Relation to the Problems of Public Health." Some two hundred people attended the meeting, thereby making a record in attendance for events under Institute auspices. Officers of the guest societies were among the speakers of the evening.

The work of the New York Chapter is well indicated by the nature of the program for the past year. The speakers and their subjects have been as follows:

October—Dr. O. P. Amend, *Chemistry and Pharmacy*.

November—Dr. R. R. Williams, *The Chemist in the Telephone Industry*.

December—Dr. Shirley W. Wynne, *The Chemist and His Relation to the Problems of Public Health*.

January—Mr. Robert T. Pollock, *The Co-ordination of Chemistry and Engineering as a Function of Industrial Development*.

February—Dr. Alexander O. Gettler, *The Chemist and His Relation to Medico-Legal Work*.

March—Dr. E. T. Sterne, *Chemists and People*.

April—Mr. P. J. Wood, *The Chemist in the Textile Industry*.

Last Meeting—No Speaker—Election of Officers.

Respectfully submitted,  
LEON V. QUIGLEY, *Secretary*

### Pennsylvania

The activities of the year commenced with a get-together meeting on Sept. 16, 1930, at the Engineers' Club, at which Chairman Franklin D. Jones outlined the program for the ensuing meetings.

On October 14th, our meeting was addressed by Mr. H. B. Miller, of the Sales Department, Chas. W. Young and Co., on *Organization and Administration*.

On Nov. 4th, we were addressed by Mr. J. D. Stevens of Business Service Company, Philadelphia. Subject—*Both Sides of the Employment Question*.

Our December meeting was in the form of an educational tour through the laboratories and wards of the Jefferson Hospital. There was a large and well-pleased attendance at this meeting.

The January meeting had Dr. Owen L. Shinn, *F.A.I.C.*, as speaker, on the subject *Chemical Education in High Schools and Colleges*.

At the February meeting Dr. Max Trumper, *F.A.I.C.*, Consulting Toxicologist, Philadelphia, spoke on the topic, *The Medical Chemist Looks at Ethics*.

The March meeting was characterized by a luncheon and a trip through the Philadelphia Museum of Art. Dr. Rossiter Howard of the Museum led a large group of members and their friends through the museum.

Dr. Henry Arnstein addressed the April meeting on *Fees and Salaries; What Is a Chemist Worth?*

At this meeting the officers of the past year were unanimously re-elected to serve for next season. They are as follows: Franklin D. Jones, *Chairman*; Eugene F. Cayo, *Vice-Chairman*; Benjamin Levitt, *Secretary*; William S. Berry, *Treasurer*; E. F. Cayo, *Councilor*.

*Financial Report:* Balance on hand, 1930, \$30.22; received from Treasurer, \$37.90; total, \$68.12; expenses, \$34.19; balance on hand, 1931, \$33.93.

In conclusion I am pleased to report that we had a very successful year in attendance at meetings and trips; in the interesting discussions which followed the various addresses; and in the addition of new members.

Respectfully submitted,

BENJAMIN LEVITT, *Secretary*,  
Pennsylvania Chapter, *A.I.C.*

## Washington

The Washington Chapter has just closed a successful year. Attendance at meetings was uniformly better than in previous years and interest in the activities of the local organization was sustained throughout the year. There were few resignations and the membership has shown a steady and healthy growth.

The activities of the past year began with a general meeting held in November, with the report of the local Reclassification Committee and the action of our National Council, as taken at its October meeting to support our work.

The next two monthly meetings consisted of inspection trips to the Elite Laundry Company and to the Continental Baking Company. Both meetings were well attended, indicating that a large number of members are evidently interested in such trips. The organization was well received at both plants.

One of the outstanding meetings of the year was held in February when Mr. Ismar Baruch, Assistant Director of the Personnel Classification Board, outlined the development of the Board and explained the machinery covering its actions. Mr. Baruch asked for the co-operation of the local Chapter in drawing up more precise definitions of the type of work required of chemists in the various grades of the Classified Federal Service and to this end a committee was ap-

pointed to work in close co-operation with the Classification Board. It is felt that in doing this the Institute will be making a very definite and valuable contribution to the professional welfare of the chemist employed by the Federal Government and incidentally will add to the local prestige of the organization.

The election of officers for the coming season was held at the March meeting, with the following results: Daniel F. J. Lynch, *Chairman*; Louis N. Markwood, *Vice-Chairman*; Cornelius E. Senseman, *Treasurer*; Colin W. Whittaker, *Secretary*.

The Chapter closed its season on April 29th, with a successful dinner held at the Cosmos Club. The principal speaker was Prof. R. A. Gortner of the University of Minnesota, who gave a most instructive and interesting address. Dr. A. F. Woods, Director of Research of the Department of Agriculture, spoke briefly in appreciation of Dr. Gortner's works. Mr. K. W. Franke of Brookings, S. D.,

a charter member of the Institute, was present and gave a short talk.

The local Chapter is still concerned over ways and means of building up a stronger numerical group. Membership is not spread out through the various departments as it should be. The most difficult problem is in convincing prospective members of the advantages and responsibilities of belonging to our organization, and for this reason we are strongly interested in any program of activities which will show benefits to the Government chemist. There is little question of the advantages that the consulting chemist gains by being recognized as a Fellow of the Institute; the usefulness of the Institute to the Government chemist is not quite so apparent. For this reason, the Washington Chapter intends to emphasize its work with the Classification Board during the coming year.

Respectfully submitted,  
D. F. J. LYNCH, *Chairman*  
Washington Chapter, A.I.C.

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### NEWS ARTICLES OF INTEREST

Too late for inclusion in this issue came the following articles:

PRIDE OF AUTHORSHIP OF SEEING THE WORLD AS OTHERS SEE IT: by John M. Weiss, F.A.I.C.; in *Chemical and Metallurgical Engineering*, May, 1931.

THE EDUCATION AND TRAINING OF THE CHEMICAL ENGINEER: in *The Oil and Colour Trade Journal* (Brit.), March 13, 1931.

REGISTRATION AND THE LABORATORY ASSISTANT: in *The Industrial Chemist*, March, 1931.

SCIENCE AND POLITICS: Editorial, *id.*

THE PROBLEM OF LABOUR DISPLACEMENT: in *The Chemical Trade Journal and Chemical Engineer*, May 1, 1931.

## The Chemical Expert

BY WILLIAM M. GROSVENOR, F.A.I.C.

*Excerpts from an address given during the Students' Course at the Chemical Exposition*

If asked to speak publicly upon this subject, I would certainly have refused on two grounds: I feel that I am not in any sense an authority on the subject, and I am very loath to say at any public meeting what might be thought critical of any other man's work in court. . . . You see, there are some other old fellows of about my own vintage in the audience. It might be unwise to talk of what the expert witness is. If pleasant things were said these old cynics might smile and think, "He's talking about himself." If unpleasant things were said he might be "talking about his opponents."

Fortunately for me there is something that can safely be discussed. Though it may be unwise to talk of what an expert *is*, it should be safe to talk of what he *ought to be* and those experts who happen to hear will recognize themselves truthfully enough described to approve, in spite of minor errors.

But there is a real reason why the ideal picture should be presented to youth—a better picture than any example can supply. Man may achieve beyond his hopes, but not his ideal. Youth, with its virility, its enthusiasm, and its career to plan, is entitled to a better picture, nearer the ideal both in its demands and its rewards; else there can be little of that hope which makes our life worth living; the hope that our sons and our pupils may do better than we have been able to do.

There is no more debasing excuse than "lots of others do it;" no more sure degeneration than to aim at the average standard of achievement. That is far below the capacity of almost any man who will try to do his best. Arrows do not fly higher than they are pointed.

The qualities an expert should have depend on his definition, built up of words, and words are but inaccurate symbols of ideas. Clear, accurate thinking deals with ideas and concepts rather than mere words, for words are dual or multiple in character. They shade their meaning as the chameleon does its color: with origin, time, and position. So it is no surprise to find the expert variously defined. For example, "Liars, damn liars, and experts," or "One skilled in the art of answering all his lawyer's questions, and evading all the opponent's questions without appearing to do so."

Perhaps the classic is the definition of the "expert relay." It is said



that in the archives of the Patent Office is an application which describes a weird form of telegraphic relay. The inventor knew little electricity and less mechanics. He thought that the longer the moving bar, the more sensitive would be the relay; and that if it were vertically pivoted to swing horizontally, the damping of gravity might be overcome. The examiner found nothing like it, so he wrote the applicant that the device appeared to be novel and the claims properly distinguished it from the art but, before passing the case to issue, he would like to know why it was entitled "Expert Relay." The answer was, "It is called a relay because it is an instrument for relaying forward telegraphic messages, and it is called an expert relay because it has a long tongue, suspended in the middle and adapted to lie with equal facility in either direction according to the nature of the influence brought to bear."

How often in history has the man who knew more than his fellows, or who understood things better, been called a liar, magician, or lunatic. It may be that all experts are not liars any more than all liars are experts. A court expert is one whose training and experience qualify him to advise the judge or jury concerning matters which are beyond the average ken of ordinary mortals.

The question at issue may concern the past. As a chemical instance, what did alum mean to an inventor writing in England in 1893?—soda or potash; a whole book has been written on that general subject. Again, how does it happen that an American inventor in 1888 writes in all seriousness that he dissolved guncotton in ether. Nitrocellulose is not soluble in ether, but the expert is supposed to know (or find out) that U. S. P. ether of that date contained about 21% of alcohol and was a perfect solvent. As a homely example, who in the United States but an expert may know a generation from now the meaning of the words "a drink?"

Or the particular issues in a given case may determine the answer. When is a substance, which is highly soluble, an insoluble agent? This sounds like a conundrum, but a moment's thought will tell you that when the only part of the substance which functions is the part which is not dissolved, and it functions for that reason only, then it becomes an insoluble agent when it is present in excess of its solubility. What is oleic acid? In the lubricating art it may be a fat because it is used in compounding grease as fat is used to make soaps; if present in excess, it may be a corrosive acid on brass bearings; in the duplicating stencil art it may be an oil replacing castor oil as a tempering agent for nitrocellulose; or it may function again as a fat when it is used to make the stencil more friable. Before he testifies the expert is supposed to know, and to know why. Time was when the expression of the expert's mere opinion carried great weight. Perhaps it does today, but no man's opinion



carries half as much weight for you as your own opinion, provided you are given conclusive reasons why that opinion is correct.

When carefully considered, many apparently absurd statements become not only reasonable, but also, in fact, the only valid proof with respect to the particular issues in the particular case.

In my humble opinion, the worst qualification a court expert can have is to be a skillful liar, for skill requires practice and that creates habit. The expert who even considers lying out of a tight place begins to dig a pit for his ultimate downfall. He is conditioning his mental reactions to seek the easy way that some time will lead into a fatal trap. Expert work is like walking over Niagara Falls on a tight-rope: a man makes just one serious mistake. Nobody who views the remains may know, and few will care whether it was deliberate, cowardly, or just accidental. The effects of lying are fairly sure to be fatal professionally, and not unlikely to be so literally. In my short experience, I think I have seen two men go that way and it is a pitiful sight. A man may be sufficiently shrewd, quick-witted, and experienced as not to be caught outright, but judges, too, are shrewd men with highly trained perceptions. They may first admire, then question, and draw their own conclusions. Soon the lawyers question the value of such a witness to their cases.

In the eyes of the law, an expert witness is generally a member of one of the learned professions who, because of his professional character and special knowledge, is assumed to be friendly to law and justice, to be a "friend of the court" and able to advise the court, or the jury, or both, wisely and honestly. As a friend of the court, he is accorded a certain distinction and certain privileges: he can refuse to answer a question with, "Yes" or "No," if it is ambiguous; he can refuse to answer a question without qualification or explanation; he can express opinions; he can even state technical facts beyond his personal experience and knowledge. To the right-minded man every privilege brings its corresponding obligation.

What manner of man should such an expert be? For his own good and that of society, and for the sake of that respect for law and justice on which civilized society depends, he should have one outstanding qualification—integrity—not merely in the colloquial sense that he pays his collectable debts and has not yet been caught lying or stealing, but in its philological sense of at-one-ness, in the sense that he is a unified personality, without dual or multiple habits of life or thought. He should be free from the fears, uncertainties, or hesitations that indicate a schizoid personality of any kind; only thus can he react automatically, instantly and naturally to any sudden stimulus, in harmony with himself and with his situation. He will tell the truth as well as he knows it because he is

true, and guide a court or jury as best his mentality, training, and experience permit. When he appears in a case, rest assured that he believes his client has just right to win, and that he sees an honest way to win, no matter how hard or long. Such a man will meet your eye squarely, yet without effort; will admit a mistake naturally, yet without dodging; will be grateful when his attention is called to an error; will deny nothing which he has said, though he may change his mind; and the change will clearly be made because he wants to make it in the interest of accuracy.

Probably no man has wholly escaped the scars of living, the tender spots where he has been bruised and torn in the struggle, the mental conditioning to fear, the hesitation as to which of his two or more selves shall act at a given instant. The more nearly he is free from these, the more candid, sincere, and likely to be correct, certainly the more impressive and convincing, will be his testimony.

The next most essential quality for the ideal expert is a masterful will directed to self-domination. This does not mean that the man is domineering, or even stubborn—quite the contrary. It means that he has the steady, purposeful self-control by which alone he can hope to do all the things he has to do in the way of self-direction and development.

One of these is the cultivation of a sound, lithe, well co-ordinated body—the finest that his physical inheritance permits. Modern psychology is teaching us that such training of the body also helps greatly to train the mind. Experience and common sense teach us that physical health, stamina, and virility are essential to long hours of driving, concentrated work. Court work is like catching a train; *after* it has left, the hardest running is useless. It is no mean test of a man's reserve power to work thirty-six out of forty-eight hours for six weeks, in the preparation of a case and still be fit to go on the stand. It may be necessary to work all day and all night before going under direct and cross examination at the opening of the case, work straight through the next night in developing further proof of matters in question, go on the stand perhaps all the next day under cross examination, and still be alert, clear, and forceful up to the end of that fifty hours.

Then comes the training of emotions into the most perfect possible subordination to the mind. Otherwise, they may becloud the expert's own judgment and reasoning, or else may interfere with the generous understanding of the other fellow, his virtues and strength as well as his shortcomings and weaknesses. It is equally dangerous to over-estimate an assistant, or to under-estimate an opponent.

An expert should train himself to the unconscious practical application of psychology for controlling and directing himself with the least strain and lost energy, for the understanding and appraisal of others with the

least delay or prejudice, and for the guidance of others in physical and mental operations with the least friction and opposition. Perhaps most difficult of all, he should train his ability to do any and all these things unconsciously, so that they appear wholly natural because they have become so, and do not interfere with quick, clear, accurate thinking about the things being consciously done.

Another is the cultivation of the habit of precise, direct, and fearless thinking without dodging or straying. What a task, all by itself! Yet how essential for one who is to guide others in their thinking on which wealth, happiness, and perhaps life may depend.

There is also the training of the mind to simplicity of viewpoint and reasoning because the expert's thinking is almost useless unless it can be expressed in speech, preferably in short sentences of well-known words accurately applied, connected by a logic which is at once so accurate as to be unquestionable, and so clear as to be almost obvious. Common-sense appeals to the hearer the instant it is uttered—it is so rare and simple.

Among the incidental accomplishments of great value to the expert, is the habit of speed writing for taking his own notes on testimony, and for use in prompting cross examination by counsel. Another is skill in lip reading, to get what is being said too softly for accurate hearing, or by a witness in a noisy courtroom, or by others generally when he is old and deaf. A third is the possession of a quiet, well-modulated voice, of great carrying power, yet of pleasant timbre, and an enunciation that is Parisian in its precision and clarity, for instant and accurate understanding.

Is that enough to ask one man to do? More than enough. But you young men have twenty years' handicap to help you in the fight for success such as I may never hope to achieve or even to approach. I was over forty before accident first put me on the stand as an expert. But "it is a great life if you don't weaken," a joyous process of learning something every day. There are probably few men from whom the wisest cannot learn something. One should avoid becoming too old or too self-satisfied to learn. When one ceases to be able to learn with pleasure, that measures the real span of life; after that he begins to die.

You have, perhaps, been expecting to hear what particular branch of science to study for this type of work. I do not know that it makes much difference. You cannot get along without chemistry and physics because they underlie all other sciences and either without the other is a very lame steed. It is not so much a question of what you study, as of how you study. When I was going off to boarding school, my father asked me why I was going. I said, "To learn," but he shook his head, and after leaving me in doubt long enough to impress the answer on my mind, he

said: "No, son, you are not going to school to learn in any sense in which you understand it—not to learn what is in the books, or what your professors may be able to tell you, but to educate yourself. The learning is purely an incidental means to that end. What you learn will be in the books and you will be able to look it up when you want it. When you are somewhat educated you will be able to pay somebody to look it up for you; if you ever amount to much, you will be able to pay somebody to stand around at your elbow and know it for you. Half of it is wrong anyway. What you are going to school for—and I hope to college, if you are worth while—is to get acquainted with your mental tools, to form the habit of keeping them clean and sharp and well arranged so that you can put your finger on them when you want them, and to acquire by gruelling experience facility in using those tools with force and precision and despatch on any material that you want to, in any direction that you want to, as long as you want to, and then to stop."

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### Personal

MISS ANIS R. PETERSON, of the Committee on Standardization of Biological Stains at the Color Laboratory, Washington, was married recently. In all Institute communications, she wishes to be addressed as

MRS. ANIS P. BRADSHAW,  
5336 Colorado Avenue, N. W.,  
Washington, D. C.

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### Deceased

CLARKE, FRANK W., *Honorary Member*: formerly Chief Chemist of the U. S. Geological Survey; died May, 1931.

LIEPSNER, FRANK W., *F.A.I.C.*; Industrial Chemist, of New Orleans, La.; died December, 1930.

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### Addresses Wanted

FLORIAN R. KAPP, formerly at 448 E. 58th Street, New York.

ANDRES SOLOMANOFF, formerly at 76 West End Avenue, Brooklyn, N. Y.

MARCEL E. SCHERER, formerly at Room 2015, 15 Park Row, New York.

KENNETH C. STEELE, formerly at 86 West 8th Street, Bayonne, N. J.

PLEASE notify the Secretary if you have any information about these members.

# The Six Blind Men and the Jellyphant

BY JEROME ALEXANDER, F.A.I.C.

(Apologies to John G. Saxe)

There were six men of chemistry  
To research much inclined,  
Who went to see the Jellyphant  
(Tho all of them were blind)  
That each by observation  
Might satisfy his mind.

The first<sup>1</sup> approached the Jellyphant  
And happening to note  
Its thirst for acids, bases too,  
At once began to gloat—  
"I see," quoth he, "the Jellyphant's  
An ampholytic goat."

The second,<sup>2</sup> happening to touch  
The amino-acid paws,  
Said—" 'Tis a biped, without doubt—  
Obeys all biped laws.  
Ridiculous to speak of it  
As running on all fours."

The third<sup>3</sup> said—"Every mother knows  
Why mayonnaise stands up.  
Well-made emulsions won't fall out  
If you invert the cup.  
'Tis plain to me the Jellyphant's  
An emulsoid-colloid pup."

"I feel such firmness," said the fourth,<sup>4</sup>  
"That seems to indicate  
The beast a solid backbone has—  
I see it sure as fate!  
This Jellyphant is nothing but  
A suspensoid vertebrate."

The fifth<sup>5</sup> deaminized its arms,  
But still it quenched its thirst.  
"Ha, ha," he cried, "a hootch-hound sure!  
Deny the fact who durst?  
A keto-enol chameleon this—  
Of all I've seen, the worst!"

The sixth<sup>6</sup> immersed the Jellyphant  
In water without malt.  
Sober, it sang *H-ion* hymns,  
In tune, without a fault.  
He sighed, and cried—"This maligned beast's  
An orthodox old salt!"

And so these men of chemistry  
Disputed loud and long,  
Each in his own opinion  
Exceeding stiff and strong,  
Tho each was partly in the right  
And all were in the wrong.

So oft in scientific wars  
The disputants, I ween,  
Rail on in utter ignorance  
Of what each other mean,  
And prate about a Jellyphant  
Not one of them has seen.

<sup>1</sup> F. Hofmeister. <sup>2</sup> S. W. B. Hardy. <sup>3</sup> Martin H. Fischer. <sup>4</sup> Wolfgang Ostwald  
<sup>5</sup> T. Brailsford Robertson. <sup>6</sup> Jacques Loeb.

## The National Council

The eightieth meeting of the Council of The American Institute of Chemists was held at The Chemists' Club, 52 East 41st Street, New York, N. Y., on Friday, April 24, 1931.

President Dr. Frederick E. Breithut presided. The following councilors and officers were present: Henry Arnstein, M. L. Crossley, N. E. Gordon, W. M. Grosvenor, J. F. X. Harold, K. M. Herstein, H. G. Knight, H. R. Moody, H. S. Neiman, Allen Rogers, A. P. Sachs, F. W. Zerban, F. W. Zons.

Mr. Frederick Kenney, Chairman of the New York Chapter, was present.

On motion made and seconded the minutes of the previous meeting were approved as submitted.

The Treasurer reported a balance of \$2031.99 in cash, with bills receivable of \$210, and all bills paid.

On motion made and seconded, the Secretary was directed to send a list of delinquents owing two years' dues to each member of the Council.

On motion made and seconded, *Article IX, Section 1, Paragraph 2*, of the By-Laws was amended to read as follows:

The dues for Fellows and Associates shall be pro-rated on a monthly basis for the remainder of the fiscal year in which they are elected.

The Secretary read a letter from Miss Wall, relating to her western trip. This letter was discussed in detail.

Dr. Crossley reported for the Committee on Nominations for Honorary Membership, and upon motion made and seconded, the following names are to be submitted at the Annual Meeting: Leo H. Backeland, Edward C. Franklin, William McPherson, William A. Noyes.

Mr. Kenney, reporting for the Committee on Public Relations, relative to contributing editors of *The CHEMIST*, stated that he had written thirty-three members, fourteen of whom have accepted, two have declined and the remainder have requested further information. Relative to industrial hazards in the chemical industry, he stated that he had received the laws from eleven states, and that these were being considered by the committee. He also reported upon the arrangements made for the Chemical Exposition, and upon motion made and seconded, the Public Relations Committee was empowered to make final arrangements relative to this matter.

The names of those elected to membership are on page 363.

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The eighty-first meeting of the Council of The American Institute of

Chemists, Inc., was held at the Carlton Hotel, Washington, D. C., on Saturday, May 9, 1931, at 10:30 o'clock A. M.

President Dr. Frederick E. Breithut presided. The following councilors and officers were present: Henry Arnstein, E. F. Cayo, M. L. Crossley, W. M. Grosvenor, J. F. X. Harold, K. M. Herstein, H. G. Knight, D. F. J. Lynch, H. R. Moody, H. S. Neiman, F. W. Zerban.

Mr. Frederick Kenney and Dr. James F. Couch were also present.

The minutes of the previous meeting were read and approved.

The Treasurer's report, showing a balance of \$1281.99, was received and filed.

Upon motion made and seconded, the question of delinquents was carried over until the June meeting.

Upon motion made and seconded, the following Resolutions were made and seconded, and unanimously adopted:

RESOLVED: That the National Council of The American Institute of Chemists expresses its deep appreciation of the assistance and aid rendered by Dr. E. R. Weidlein in the preparations for the luncheon given at the Carlton Hotel, Washington, D. C., on Saturday, May 9, 1931, at which time the medal of The American Institute of Chemists was presented to Andrew W. Mellon and Richard B. Mellon; and that a copy of this Resolution be spread upon the minutes and a copy forwarded to Dr. Weidlein.

RESOLVED: That the National Council expresses its appreciation to Miss Florence E. Wall for her efficient and devoted service in the development of *The CHEMIST*; and that a copy of this Resolution be spread upon the minutes, and a copy forwarded to Miss Wall.

RESOLVED: That the appreciation of the National Council of The American Institute of Chemists, Inc., be extended to Mr. W. F. Keohan for his effective services in connection with the publicity given the Medal Award and Luncheon, and his arrangements with the National Broadcasting Company for that occasion; and that a copy of this Resolution be spread upon the minutes and a copy forwarded Mr. Keohan.

RESOLVED: That The American Institute of Chemists, Inc., expresses its great appreciation of the hearty co-operation and invaluable assistance given by The Chemical Foundation, Inc.; that a copy of this Resolution be spread upon the minutes and a copy be forwarded to The Chemical Foundation, Inc.

There being no other business, adjournment was taken.



The eighty-second meeting of the Council of The American Institute of Chemists was held at The Chemists' Club, 52 East 41st Street, New York, N. Y., on Friday, June 12, 1931.

President Dr. Frederick E. Breithut presided.

The following councilors and officers were present: Henry Arnstein, E. F. Cayo, M. L. Crossley, W. M. Grosvenor, J. F. X. Harold, K. M. Herstein, A. E. Hill, H. G. Knight, H. S. Neiman, A. P. Sachs, and F. W. Zons.

Mr. Frederick Kenney, Chairman of the New York Chapter, was present.

The minutes of the previous meeting were approved.

The Treasurer reported as follows: Cash balance, \$2,194.83; accounts receivable, \$699.31; bills payable, \$862.10. The Treasurer's report was accepted.

The Secretary stated that President Breithut has appointed Dr. Walter T. Taggart to represent The American Institute of Chemists at the meetings of the Royal Institute of Great Britain, the Faraday Society, and the Society of Chemical Industry, and upon motion made and seconded, the appointment was confirmed.

Upon motion made and seconded, Dr. Arnstein and Miss Wall were delegated to represent the Institute at the meeting of the *Association of South American Scientists* to be held in Montevideo and Buenos Aires in October.

The question of the appointment of an editor of *The CHEMIST* having been discussed the following Committee was appointed to decide the matter: Dr. Crossley, Dr. Zons, and Mr. Neiman.

The Secretary was directed to write all of the two-year delinquents that if their dues are not paid before July 15th, they will be dropped from membership.

The following standing and special committees were appointed:

*Budget*

Frederick W. Zons  
J. F. X. Harold  
Allen Rogers

*Civil Service*

Howard S. Neiman  
Daniel F. J. Lynch  
Frederick J. Kenney

*Constitutional Revision*

Lloyd Van Doren  
Arthur E. Hill  
Karl M. Herstein  
William Stericker  
James F. Couch

*Professional Education*

M. L. Crossley  
Herbert R. Moody  
Neil E. Gordon

*Ethics*

Henry G. Knight  
Joseph F. X. Harold  
Frederick W. Zerbán

*Insignia*

Frederick Kenney  
William A. Hamor  
Calm M. Hoke

*Legislation*

William M. Grosvenor  
Karl M. Herstein  
Frederick Kenney

*Qualifications*

Howard S. Neiman  
William L. Prager  
J. W. H. Randall  
Frederick W. Zons

*Membership*

J. W. H. Randall  
William A. Hamor  
Walter T. Taggart

The Chairman of each Chapter Membership Committee with power to add to the Committee.

The names of those elected to membership are on page 363.  
There being no other business, adjournment was taken.

HOWARD S. NEIMAN, *Secretary*

June 12, 1931

## News of the Chapters

### New York

The Annual Meeting of the New York Chapter was held at The Chemists' Club on Friday evening, May 1, 1931. Since it was the last meeting of the season, no speaker was scheduled, and the meeting was called to order immediately after dinner for the transaction of business.

Frederick J. Kenney reported on his activities as Chairman of the Chapter; Leon V. Quigley reported as Secretary-Treasurer and as Chairman of Publicity for the Chapter.

During the meeting a letter was received from Daniel P. Know-

land who declined with thanks his nomination for chairman of the Chapter.

Following report of Mr. Knowland's communication, there was considerable discussion on the subject of notifying nominees before listing their names on the ballot. It was found that the present constitution makes no such provision.

The annual election was conducted by written ballot, with results as follows: *Chairman*, Frederick J. Kenney; *Vice-Chairman*, P. J. Wood; *Secretary-Treasurer*, Leon V. Quigley; *Representative to National Council*, Karl M. Herstein;

*Councilors* (three years), O. P. Amend, J. W. H. Randall, Miss F. E. Wall.

Attention was called to the fact that since Mr. P. J. Wood of the Council had been elected Vice-Chairman of the Chapter, it was necessary to elect another Councilor in his place. Jerome Alexander and George Schneider were nominated; Mr. Alexander was elected.

Dr. Frederick E. Breithut, President of the Institute, addressed the Chapter on the subject of the Annual Meeting of the national body at Washington, and the forthcoming award of the medal to Messrs. Andrew and Richard B. Mellon.

The subject of business meetings *versus* program meetings was discussed at length by Fellows Alexander, Crossley, Frank, Herstein, Jay, Neiman, Snell, Wood, and others.

Motion was made by Mr. Jay that there be three business meetings during the Chapter year, and that these be held early, late, and intermediate, with regard to the schedule as a whole. Mr. Neiman proposed an amendment to the effect that there be two special meetings devoted to business. Vote was taken on the amendment, and it was carried; vote was then taken on the amended motion, and it was lost.

Mr. Jay moved that a copy of the Chapter constitution be sent to each member of the Chapter at the early convenience of the officers so that each member of

the Chapter may be conversant with it and submit suggestions toward a revision of the constitution within the next year. The subject of revision could not receive formal consideration or action at the present meeting.

Doctor Breithut moved that a committee of three be appointed to revise the Chapter Constitution; no appointments were made at this meeting.

Mr. Van Doren moved a rising vote of thanks to the Chapter officers and council for their work during the past year; this was unanimously carried.

The meeting adjourned at 10:30 P. M.

Respectfully submitted,  
LEON V QUIGLEY, *Secretary*

Washington

The Washington Chapter held a dinner meeting, on April 29th, at the Cosmos Club. The speaker of the evening was Dr. Ross A. Gortner, biochemist, from the University of Minnesota.

Daniel F. J. Lynch, Chairman, introduced Mr. Kurt W. Franke of Brookings, South Dakota. Although Mr. Franke is a charter member of The American Institute of Chemists, he had never before been able to attend a meeting.

Dr. A. F. Woods, Director of Research of the Department of Agriculture, welcomed Dr. Gortner, who then spoke on the subject, "Biochemistry in the World Today."

He introduced his talk by describing the "life layer of the world," the comparatively small portion of the world which we occupy, saying that men are creatures of a living environment, and it is with this living environment that the wide field of biochemistry concerns itself. He defines biochemistry as that "field of science devoted to the study of living compounds and the roles that these compounds play in life."

Dr. Gortner then traced the probable evolution of life, naming chlorophyll as the most important chemical ever originated. He believes that the greatest chemical reaction is the making of sugar from carbon dioxide and water; and that the second greatest reaction is the reverse of this.

According to Dr. Gortner, the modern age might be called "The Age of Energy." In 1776 there was the equivalent of three slaves for every individual. Now there is the energy equivalent of eight hundred and twenty-five slaves for every individual. This increase comes mostly from the stored-up energy of bygone chemical reactions. Taking as a basis the present use of coal, Dr. Gortner predicted a bankruptcy of energy in less than two thousand years.

The important industries of the world utilize biochemical reactions. For example, although the fixation of nitrogen is one of our large chemical industries, last year the total industrial fixation of nitrogen

amounted to less than one-tenthousandth of the nitrogen brought down by rainfall. Organisms fix a billion tons more than industry does.

Sugar beets have been developed. The area which will grow corn has been enlarged. Pineapple growing has been made profitable by the use of iron salts. Thus, all life depends on biochemical reactions.

The "integrated expression of diverse reactions is termed life." Biochemistry tries to seek out the compounds that regulate the body, identify and synthesize them, and then supply them as medicine to the doctors. Adrenalin, insulin, and thyroxin are some of the compounds already found. The goal of biochemistry is an adequate supply of every hormone for medicine.

Dr. Gortner then read a passage from Dr. Henry Page's book *Good Will on a Coral Strand*, describing a mysterious sickness among Malayan babies whose mothers had beri-beri. The babies were saved by feeding them Vitamin B.

He believes that the fabled "elixir of life" may some day be found by biochemists in the relation of water to other elements in the body.

Dr. Gortner concluded with the injunction—"Take an interest in laboratories; they are the temples of the future."

J. D. REID

## Personals

MARSTON T. BOGERT has been designated a member of the New York Committee of One Thousand in connection with the Seabury investigation of the New York City Government.

ALBERT E. CONKLIN, formerly with the Dennison Mfg. Co. of Framingham, Mass., is now employed as Chemical Engineer, with the Berkshire Coated Paper Co., Great Barrington, Mass.

NEIL E. GORDON will spend the summer in Baltimore, conducting the Department of Chemical Education at The Johns Hopkins University Summer School and directing some research work.

FREDERICK J. KENNEY has been recently elected Chairman of the Membership Committee of The Chemists' Club.

LOUIS N. MARKWOOD, lately elected Vice-Chairman of the Washington Chapter, has moved to Brooklyn, New York, and transferred his membership to the New York Chapter.

JOHN J. OVER has moved to Franklin, Pa., where he now holds the position of Assistant Chemist with the Atlantic Refining Co.

LAWRENCE V. REDMAN spoke on the differences in the ideals and customs of the Western and the Eastern civilizations at the Alpha Chi Sigma dinner during the Chemical Exposition.

DR. E. EMMET REID is planning to attend the jubilee meeting of

the Society of Chemical Industry in England this summer, after which he will travel in England.

WALTER T. TAGGART has been delegated to represent the Institute at the meetings of the Royal Institute of Great Britain, the Faraday Society, and the Society of Chemical Industry, which will be held in England in July.

LLOYD VAN DOREN, formerly with the Allied Chemical and Dye Corp., New York, is now associated with Watson, Bristol, Johnson, and Leavenworth, 6 East 45th Street, New York, in general practice in chemical patent matters.

EDWARD R. WEIDLIN spoke on *The Role of Chemistry in Times of Business Depression* at the ninth annual meeting of the Virginia Academy of Science in Norfolk.

SAMUEL M. WEISBERG obtained his Ph.D. in Biochemistry from The Johns Hopkins University on June 9th. He is now at the Research Laboratories of the National Dairy Products Corporation in Baltimore.

The following Institute members have been elected officers of the American Section of the *Society of Chemical Industry*: Allen Rogers, *Chairman*; Foster D. Snell, *Secretary*. William Gesell, Robert J. Moore, Irving Hochstadter, and Benjamin T. Brooks are new members of the Executive Committee.

## THE MEMBERS' FORUM

*This department is intended for the frank discussion of Institute activities, published articles, etc. Your co-operation in helping to make it a success will be some evidence that chemists are not quite so inarticulate as is commonly supposed.*—EDITOR

TO THE EDITOR OF *The CHEMIST*:

In the May, 1931, issue of *The CHEMIST* there was printed a letter by Jerome Alexander, which ended with the question: "What limitations should chemists place on the use which their clients may make of their reports on work done?"

For various reasons, I have given thought to the subject of the utility of advertising over a number of years. The point of view which I have reached, therefore, while radical in some respects, has the merit of being thoroughly considered. From it an answer to Alexander's question is readily deducible.

As I see it, advertising serves two widely separate functions. *First*, its public service lies in the fact that by means of advertising any advances in commercial knowledge of general value are brought to the attention of the consumer. The general public's attention to dental hygiene has developed partly at least as a result of advertising. Within the past few months an advance in the quality of photographic film has been advertised in the public prints and thereby made known to the millions of amateur photographers. Such a use of advertising merits only commendation.

On the other hand, there is even in this kind of advertising a tendency by some to select doubtful developments of little or no value and to exploit pseudo-science. For instance, we learn from some advertisement that perspiration, which Edison considers to be nine-tenths of inventive genius, may in reality be a disorder with a fell Greek name and requires prompt purchase of some medicament before it becomes fatal, if not literally, at least to one's social career. No man of any pretension to scientific training need hesitate long in making the distinction just indicated.

*Second*, there is purely competitive advertising, however much this may be denied by its proponents. I, personally, believe that the fortunes spent annually in advising the public to purchase *Antique Platinum* cigarettes in preference to *Hippopotamus* brand are so much economic waste. Here, too, the basis of classification is readily apparent to a trained mind.

So much for classification. Now, as for action. The chemist owes a duty to the public, to his profession, and to his conscience, as well as his pocket-book. For the sake of the public and his conscience he must be certain that any publication of his findings is justified in theory and in fact. This should be true not only in the meticulous precision of his statements, but also in the broad and perhaps loose sense in which they will be understood by their reader. This canon will usually preclude an endorsement of any one competitive article in a group. It will also exclude emphasis on differences which are not essential to real merit. For the sake of the profession he must maintain that attitude of restraint and dignity which will enhance rather than diminish it in the general public esteem; for he, as a member of the profession, is the beneficiary of his predecessors and compeers as well as an example to his successors.

In this statement I have necessarily confined myself to general terms. In the application of the propositions to any doubtful case, I feel that they should be given great weight.

Very truly yours,

KARL M. HERSTEIN

New York City, June 3, 1931

## Editorial

### The Medalists

The quest for knowledge is the motivating force of human progress. The aim of science is knowledge about phenomena. The aim of finance is knowledge about investments. The aim of business is knowledge about commercial development. The most essential quality of scientists, bankers, and business men is faith in their knowledge. Enthusiasm has its origin in this faith, and, as Emerson once said, nothing great was ever achieved without enthusiasm.

Like a scientist, a banker surely consecrates his energies to the search for truth. It is for this reason that he has faith in the accurate knowledge of science. Successful bankers believe in their own science and in science in general; they have indeed a strong trust in all science which nothing can move.

But business administration is an art as well as a science. While it has its foundation in profound and exact science, to be adaptable to actual use, in controlling and regulating the concerns of industrial and commercial life, it must have its artistic skill, which can only be acquired by habitual practice.

In the A. I. C. medalists for 1931 there is a happy and rare combination of various scientific and artistic aptitudes—financial and industrial—that has advanced them

to achievement in business administration.

It has been well pointed out that in the history of industry no one has left his mark on the world unless he has been an originator. And do you realize that originality is just as much an outstanding virtue of financiers and other business men as it is of scientists and engineers? The medalists are alert discoverers of capable inventors and managers, with whom they have become, on several occasions, innovators of industries. Very frequently inventors are not tenacious; they are unable to concentrate. Hence many inventions without perseverance cannot go very far. A number of inventors have been directed well along the road to industrial success by the critical faculty and encouragement of the medalists.

All of us know about the surpassing scientific and artistic ability of the Mellon brothers in the administration of business. Only a comparatively few persons, however, are aware of their remarkable qualities of character and mind; their keen discrimination, their intense love of order, their gentleness, their dignity, all of which have been of incalculable importance in their success. They have always been conservative, but have always sought responsibility and have always had generosity in their



strength. Their greatness seems so natural that it is a constant source of satisfaction to their many friends. The Mellon brothers belong not to a generation, but to a century.

The very generous point of view of the medalists was shown most clearly in their foundation of the Mellon Institute of Industrial Research. Having seen in their own business the benefits that are derivable from industrial research,

they established this institution to help the industries in general. They have been able to perceive that industrial leadership needs a continuity of direction, talent, and integrity. To them industrial research provides management with the means for acquiring, through diligent and interested exploration, the knowledge that will point the way to the uninterrupted development of our manufactures.

### IN MEMORIAM

Frank Wigglesworth Clarke

*Honorary Fellow, A. I. C.*

Life's activities were laid aside by Dr. Clarke as quietly as he had carried them on during the course of a long and busy career, filled with manifold interests. Death came to him on May 23, 1931, at his home in Chevy Chase, Md.

Dr. Clarke was born at Boston, on March 19, 1847, and received his baccalaureate degree from the Lawrence Scientific School of Harvard in 1867. After several years of teaching at Cornell, Howard, and Cincinnati, he entered the United States Geological Survey as Chief Chemist in 1883 and held this post for over forty years. During this time he not only discharged the duties of his position but also found the opportunity to write numerous books and papers on geochemistry, and to teach Mineral Chemistry for a while at George Washington University.

Dr. Clarke was President of the

International Commission of Chemical Elements, and a member of the International Jury of Awards at Paris in 1900. He was a chevalier of the *Légion d'Honneur* of France, and the recipient of honorary degrees from several American and European universities. He was a member of many scientific societies, and a Past-President of the American Chemical Society. He was elected an Honorary Fellow of the Institute in 1928.

With his high scientific attainments, Dr. Clarke combined a gentle and kindly personality. By those of us who were privileged to attend his classes, to be his companions at dinner and listen to the ready wit and humor of his discourse, or to visit him in his home, his memory will be treasured among our most delightful recollections.

J. N. TAYLOR

## NEW MEMBERS

### Fellows

- |   |   |
|---|---|
| MISSEL E. FREUDENHEIM, President and<br>Chief Chemist, Freud Laboratory, Inc.,<br>655 Sixth Avenue, New York. | ARLINGTON C. KRAUSE, Instructor (Oph-<br>thalmology), Wilmer Institute, Johns<br>Hopkins Hospital, Baltimore, Md. |
| SHERVEY IRVING GALE, Chemist, Calco<br>Chemical Co., Inc., Bound Brook, N. J.                                 | JACOB KURTZ, Chemical Engineer, Callite<br>Products Company, 547—35th Street,<br>Union City, N. J.                |
| WILLIAM STERICKER, Chief Chemist,<br>Philadelphia Quartz Co., 121 South<br>Third Street, Philadelphia, Pa.    |   |

### Associates

- |   |   |
|---|---|
| FRANK ANTHONY DEMELFY, Research<br>Chemist, Philadelphia College of Os-<br>teopathy, Philadelphia.            | CECIL LATHAM MANNING, Chemist, Fort<br>Worth Laboratories, 828 $\frac{1}{2}$ Monroe<br>Street, Fort Worth, Texas. |
| SAM M. HUMPHREYS, Chemist, Fort Worth<br>Laboratories, 828 $\frac{1}{2}$ Monroe Street,<br>Fort Worth, Texas. | DAVID EVANS SINGER, 9308 Avenue B,<br>Brooklyn, N. Y.   |

### Juniors

- |  |   |
|--|---|
| ROBERT F. CURRAN, Student, College of<br>the Pacific, Stockton, Calif.                                     | HOWARD ALBERT SMITH, Student, College<br>of the Pacific, Stockton, Calif.           |
| CHARLES EMANUEL ENTEMANN, JR.,<br>Graduate Student, Cornell University,<br>207 Kelvin Place, Ithaca, N. Y. | KENNETH G. WATKINS, Student, College<br>of the Pacific, Stockton, Calif.            |
| BENJAMIN PELTZ, 420 Concord Avenue,<br>Bronx, New York.  | WILLIAM C. WATKINS, Student, College of<br>the Pacific, Stockton, Calif.            |
| JOHN ANTHONY RUTH, Student, College of<br>the Pacific, Stockton, Calif.                                    | MICHAEL WERBLOW, Graduate Student,<br>College of the City of New York,<br>New York. |

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Please pass this copy of *The CHEMIST* on to some eligible chemist who is not yet a member of the Institute. Additional copies and an application blank may be obtained from the secretary, Howard S. Neiman. See form, inside back cover.

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